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PROCEEDINGS

OF THE

Sixth Annual Conference

OF THE

Provincial Ministers of Mines

OF CANADA

Fredericton, New Brunswick September 7-10, 1949







Left to right: Honourable J. H. Brockelbank, Honourable R. C. MacDonald, Honourable E. Russell, The Honourable D. L. MacLaren, Lieutenant-Governor of New Brunswick, Honourable W. S. Gemmell, Honourable R. J. Gill, Honourable C. D. French, Honourable N. E. Tanner. (Absent: Honourable M. A. Patterson.)

PROCEEDINGS

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Sixth Annual Conference

OF THE

Provincial Ministers of Mines

OF CANADA



Department of Lands and Mines

Fredericton, New Brunswick

Honourable R. J. Gill

Minister

Dr. G. H. Prince
Deputy Minister

C. S. Clements
Secretary of Conference



FOREWORD

On November 17, 1944 during the Annual Meeting of the Canadian Institute of Mining and Metallurgy in Vancouver, the late Allan A. MacKay arranged a meeting of the Ministers of Mines in attendance. This meeting was convened by the Honourable E. C. Carson, then Minister of Mines for British Columbia. The following year the first Annual Conference of the Provincial Ministers of Mines was held in Quebec City. Since that time Conferences have been held annually in provinces from east to west.

At this time I recommend to those concerned careful consideration respecting the future of the Conference. Opinions have been expressed that the Conference be held annually; that it be held biennially; and that there be a secretariate as a permanent organization to arrange Conferences and to serve government and industry.

The meetings of the Ministers of Mines with government officials and industry representatives have resulted in unanimous agreement in certain problems and have enabled the Ministers to approach Federal authorities with common purpose. They have also led to useful exchange of information and have enabled representatives to gain a new perspective of local problems. The spirit of friendly co-operation which has pervaded the meetings is an indication of their more intangible values.

R. J. GILL

Minister of Lands and Mines.



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List of Delegates

ALBERTA

Honourable N. E. Tanner, Minister of Mines and Minerals, Edmonton.

Mr. R. A. Brown, Brown, Moyer and Brown Limited, Calgary.

Mr. John Crawford, Director of Mines, Department of Mines and Minerals, Edmonton.

Mr. W. J. Dick, Secretary Inter-Provincial Committee on Petroleum and Natural Gas, Edmonton.

Mr. J. W. Hamilton, Secretary-Treasurer, Home Oil Co. Ltd., Calgary.

Mr. John Harvie, Deputy Minister, Department of Lands and Forests, Edmonton.

Mr. I. N. McKinnon, Deputy Minister, Department of Mines and Minerals, Edmonton.

Mr. J. G. Spratt, Managing Director, Anglo-Canadian Oil Co., Calgary.

Mr. W. C. Whittaker, Secretary-Commissioner, Western Canada Bituminous Coal Operators' Association, Calgary.

BRITISH COLUMBIA

Honourable R. C. MacDonald, Minister of Mines, Victoria.

Mr. H. C. Hughes, Senior Inspector of Metalliferous Mines, Department of Mines, Victoria.

Mr. W. G. Jewitt, Manager of Mines, Consolidated Mining and Smelting Company Limited, Trail.

Mr. A. E. Jukes, President, Sheep Creek Gold Mines Limited, Vancouver.

Dr. H. Sargent, Chief Mining Engineer, Department of Mines, Victoria.

Dr. C. O. Swanson, Chief Geologist, Consolidated Mining and Smelting Company Limited, Trail.

Dr. T. B. Williams, Controller of Coal, Petroleum and Gas, Department of Lands and Forests, Victoria.

Mr. H. Wilton-Clark, General Superintendent, Crows' Nest Pass Coal Company Limited, Fernie.

MANITOBA

Mr. D. M. Stephens, Deputy Minister, Department of Mines and Natural Resources, Winnipeg.

Mr. J. S. Richards, Director of Mines, Department of Mines and Natural Resources, Winnipeg.

Mr. F. D. Shepherd, Secretary-Treasurer, Mid-West Mining Association, Winnipeg.

NEW BRUNSWICK

Honourable R. J. Gill, Minister of Lands and Mines, Fredericton.

Mr. R. A. Brown, Shell Exploration New Brunswick Limited, Moncton.

Mr. E. J. Chaput, Shell Exploration New Brunswick Limited, Moncton.

Mr. C. S. Clements, Chief Inspector, Mines Branch, Department of Lands and Mines, Fredericton.

Mr. M. B. Connors, General Manager, Welton and Henderson Limited, Minto.

Mr. A. D. Kingsford, Manager, Shell Exploration New Brunswick Limited, Moncton.

Dr. G. S. MacKenzie, Professor of Geology, University of New Brunswick, Fredericton.

Mr. D. P. Manzer, Assistant Geologist, Mines Branch, Department of Lands and Mines, Fredericton.

Dr. G. H. Prince, Deputy Minister, Department of Lands and Mines, Fredericton.

Mr. Percival Streeter, President, Avon Coal Company Limited, Saint John.

Mr. A. M. Tooke, Manager of Mines, Miramichi Lumber Company Limited, Minto.

Mr. J. Vandenbroeck, Deputy Inspector of Mines, Minto.

Mr. A. W. Wasson, President, A. W. Wasson Limited, Newcastle Creek.

Mr. C. T. R. Wilson, General Manager, New Brunswick Oilfields Limited, Moncton.

Dr. W. J. Wright, Provincial Geologist, Mines Branch, Department of Lands and Mines, Fredericton.

NEWFOUNDLAND

Honourable E. Russell, Minister of Natural Resources, St. John's.

Mr. C. K. Howse, Government Geologist, Department of Natural Resources, St. John's.

NOVA SCOTIA

Honourable M. A. Patterson, Minister of Mines, Halifax.

Dr. A. E. Cameron, President, Nova Scotia Technical College, Halifax.

Mr. T. J. Casey, Chief Inspector of Mines, Department of Mines, Halifax.

Mr. Frank Doxey, Assistant to General Manager, Dominion Coal Company, Sydney.

Mr. M. G. Goudge, Mining Engineer, Department of Mines, Halifax.

Dr. R. D. Howland, Vice-President, Nova Scotia Research Foundation, Halifax.

Mr. J. P. Messervey, Deputy Minister, Department of Mines, Halifax.

Mr. S. C. Mifflen, Technical Assistant to General Manager, Dominion Coal Company, Sydney.

ONTARIO

Honourable W. S. Gemmell, Minister of Mines. Toronto.

Mr. A. E. K. Bunnell, Consultant on Community Planning, Department of Planning and Development, Toronto.

Mr. A. R. Crozier, Mine Assessor, Department of Mines, Toronto.

Dr. M. E. Hurst, Provincial Geologist, Department of Mines, Toronto.

Mr. E. L. Longmore, General Manager, Hollinger Consolidated Mines, Timmins.

Mr. J. F. McFarland, Supervisor, Mining Lands Branch, Department of Mines, Toronto.

Mr. N. F. Parkinson, Executive Director, Ontario Mining Association, Toronto.

Mr. H. C. Rickaby, Deputy Minister, Department of Mines, Toronto.

Mr. W. S. Row, General Manager, Kerr-Addison Mines, Virginiatown.

Mr. Walker L. Taylor, Assistant General Manager, Exploration and Producing Department, Imperial Oil Limited, Toronto.

OTTAWA

Dr. H. L. Keenlevside, Deputy Minister, Department of Mines and Resources, Ottawa,

Dr. G. S. Hume, Director, Mines, Forests and Scientific Services Branch, Department of Mines and Resources, Ottawa.

Mr. W. E. Uren, Chairman, Dominion Coal Board, Ottawa.

QUEBEC

Honourable C. D. French, Minister of Mines, Quebec.

Mr. R. R. Basserman, President, Western Quebec Mining Association, Malartic,

Dr. B. T. Denis, Chief, Division of Mineral Deposits, Department of Mines, Quebec.

Mr. A. O. Dufresne, Deputy Minister, Department of Mines, Quebec.

Mr. J. C. Houston, Noranda.

Mr. G. M. Hutt, Development Commissioner, Canadian Pacific Railway Company, Montreal.

Dr. I. W. Jones, Chief, Geological Survey Branch, Department of Mines, Quebec.

Mr. Eugene Larochelle, Secretary, Western Quebec Mining Association, Quebec.

Mr. O. C. Smith, Quebec Asbestos Mining Association, Thetford Mines.

Mr. Roger Taschereau, Chief Inspector of Mines, Department of Mines, Quebec.

Mr. J. E. Whimster, Canadian Pacific Railway Company, Montreal.

SASKATCHEWAN

Honourable J. H. Brockelbank, Minister of Natural Resources and Industrial Development, Regina. Mr. W. J. Bichan, Director of Mineral Resources, Department of Natural Resources and Industrial Development, Regina.

Mr. W. H. Hastings, Chief Inspector of Mines, Department of Natural Resources and Industrial

Development, Regina.

PROGRAMME

All Sessions were held in the Parliament Buildings

WEDNESDAY, SEPTEMBER 7

9.00 p.m.—Meeting of all Ministers with Chairmen of Provincial Subcommittees.

9.00 p.m.—Meeting of Inter-Provincial Petroleum and Natural Gas Committee.

9.00 p.m.—Meeting of Standing Committee on Coal.

THURSDAY, SEPTEMBER 8

9.30 a.m. to 12.30 p.m.—Plenary Session.

2.15 p.m. to 5.00 p.m.—Plenary Session.

8.30 p.m. to 10.30 p.m.—Committee 5 — Ground Water Table and Water Supply.

FRIDAY, SEPTEMBER 9

9.30 a.m. to 12.30 p.m.—Committee Sessions.

2.15 p.m. to 5.00 p.m.—Committee Sessions.

Committee 1 — Exploration and Development of Mineral Resources.

Committee 2 — Coal.

Committee 3 — Petroleum and Natural Gas.

Committee 4 — Metal Mining and Miscellaneous Topics.

SATURDAY, SEPTEMBER 10

9.30 a.m. to 12.30 p.m.—Meeting of Ministers.

2.00 p.m.—Meeting of all Conference Members — Report of Ministers.

REPORT OF SESSIONS

THURSDAY, SEPTEMBER 8

9.30 a.m. to 12.30 p.m.—PLENARY SESSION.

Chairman: Honourable R. J. Gill

- 1. Address of welcome by Conference Chairman Honourable R. J. Gill.
- 2. Proceedings of the Fifth Annual Conference of the Provincial Ministers of Mines held at Jasper National Park, Alberta, September 2-4, 1948 were tabled and accepted as minutes of that Conference.
- 3. Ground Water and Water Supply Dr. G. S. Hume.
- 4. Mining Townsites A. E. K. Bunnell.
- 5. Problems Affecting the Coal Industry of Western Canada John Crawford.
- 6. Problems Affecting the Coal Industry of Eastern Canada Dr. R. D. Howland.
- 7. Coal Industry of New Brunswick A. M. Tooke.
- 8. The Dominion Coal Board W. E. Uren.
- 9. The Mining Industry of Newfoundland C. K. Howse.
- 10. Questions concerning The Coal Industry of Canada Honourable N. E. Tanner.

2.30 p.m. to 3.30 p.m.—PLENARY SESSION.

Chairman: Honourable N. E. Tanner

- 11. Petroleum and Natural Gas I. N. McKinnon.
- 12. Radio Active Minerals W. J. Bichan.
- 13. United Nations Scientific Conference on the Conservation and Utilization of Resources Dr. H. L. Keenleyside.

Chairman: Honourable W. S. Gemmell

- 14. Problems Affecting Gold Mining Industry N. F. Parkinson.
- 15. Problems Affecting Base Metal Mining Industry W. G. Jewitt.

REPORTS OF COMMITTEES

COMMITTEE 1 — EXPLORATION AND DEVELOPMENT OF MINERAL RESOURCES.

Committee:

1. Topographic Mapping and Aerial Photography.

The Committee records appreciation of the value of the work of the Dominion Topographical Survey and it desires that an aggressive program of mapping be continued.

2. Geological Surveys, Reports, Maps, etc.

It is desired that a "form book" of geological symbols, patterns, colours, and map scales be issued by the Geological Survey of Canada.

3. Claims, Licenses, Leases, Concessions, Permits.

Discussion — no motions.

4. Air Transport, Landing Facilities, Roads, etc.

While it is true that roads into mining areas are essential in the economic operation of most mines, this Committee records and urges for serious consideration the following views:—

- (1) Roads into new mining areas open up intervening country to more intensive prospecting, to lumbering, tourist traffic and land settlement, all of economic importance.
- (2) They extend the frontiers beyond their destination for further exploration and development.
- (3) Improved roads into existing mining areas serve to develop those areas for other industry and settlement than directly concerned with mining.
- (4) Roads into all mining areas are usually such as to minimize duplication or parallelling of existing means of transportation. In the main they act as feeders to our main arteries, especially our railroads.

In the light of all these we urge that every effort be made by Governments to expedite the building of new roads into new mining areas and to improve those to the older established fields.

In addition we would respectfully point out that insofar as maintenance including the ploughing of these roads for snow clearance in winter is concerned, substantial assistance from Government should be provided for in the interest of general use.

The Committee records its recognition of the essential value of airstrips to isolated mining communities both in the early and later stages of development and urges serious consideration by Government of their provision where indicated.

5. Geophysical Surveys with Airborne Equipment.

Committee No. 1 had before it for consideration a submission on airborne magnetometer surveys as distributed to the Provincial Ministers of Mines by the Honourable Colin Gibson, Minister of Mines and Resources of the Dominion Government, and as included in the proposed program and agenda of the Conference.

After lengthy discussion and comment the Committee is agreed and so recommends to the Ministers of Mines of the Provinces that,

"Bearing in mind the early development stage of the equipment now available and the desirability of encouraging in any way possible the widest and most efficient use of all available prospecting aids and all methods which contribute to obtaining geological information, and also bearing in mind the desirability of co-ordinating all available data and the preparation therefrom of authoritative maps to assist in the development of the mineral resources, it is urged that the Provincial Governments in co-operation with industry in their respective provinces work out the most effective and equitable means of providing information of the type required for this purpose."

COMMITTEE 2 — COAL.

Committee:

A. E. Cameron, Chairman	F. Doxey	P. Streeter
T. J. Casey	W. H. Hastings	A. M. Tooke
J. Crawford	R. D. Howland	W. C. Whittaker
A. R. Crozier	S. C. Mifflen	H. Wilton-Clark

1. Report of Standing Committee on Coal.

Mr. Whittaker, Acting Chairman of the Standing Committee on Coal appointed at the Fifth Conference, presented a report as per Appendix 1 (page 6).

The report received the unanimous approval of the Committee.

2. Questions submitted by Honourable Mr. Tanner:

The questions submitted by the Honourable Mr. Tanner (note page 77) to the Plenary Session of the Conference on September 8 and by that session referred to the Committee on Coal were considered in their many aspects and some observations of the Committee are given in Appendix II (page 6).

3. Depletion Allowance on Coal Mining Dividends.

The Honourable Ministers at the Fifth Annual Conference at Jasper approved certain recommendations of the Committee on Coal with relation to depletion allowance on dividends to shareholders. Such allowances amount to 20 per cent on metal mining, oil and gas dividends.

It is the recommendation of the Committee on Coal that the same depletion of 20 per cent be allowed on dividends to shareholders of coal companies.

The Committee respectfully requests the Ministers to approach the Minister of Finance in Ottawa and press for action on this matter.

4. Flame Proof and Explosion Proof Equipment in Coal Mines.

The Committee reiterates the need of a Canadian authority for certification of Canadian built equipment for use in Canadian ccal mines and urges the Ministers' Conference to request the Dominion Government to establish without delay a testing, approval and certification authority for such purposes. It suggests that this matter might be made a function of the Dominion Bureau of Mines.

5

5. Coal Sales Acts.

The Committee has reconsidered the recommendation made at the Fifth Conference on legislation respecting the grading and specification of coal for sale in consuming areas. In view of the legal nature and juridical aspects of this problem the committee does not feel that it can press this matter from a national point of view at this time.

6. Research on Coal.

The Committee was advised on research programmes that are being carried out by both the Dominion and Provincial authorities.

It commends these investigations and has particularly noted the close co-ordination of the Dominion and the Provinces in various fields. The Committee commends the Dominion Coal Board for its initiative in calling a conference on research in the coal industry last December.

7. Coal Mines Regulations Acts.

The Committee notes that both British Columbia and Alberta have revised the Provincial Coal Mines Regulations Acts in recent years. During the past year a conference under the auspices of the I.L.O. in Geneva, Switzerland completed a model code on regulations in coal mines and the committee suggests that further revisions of provincial regulations acts should be deferred until this model code is made available.

APPENDIX I

Report from the Standing Committee on Coal

The Standing Committee on Inter-Provincial Policy with respect to Coal appointed at the Fifth Conference has not functioned as a unit during the year although members of the Committee did, from time to time, confer with interested parties within their respective Provinces.

As an outcome of these preparatory discussions and of a plenary meeting of the Committee held at this Ministers of Mines Conference, it is realized that the Dominion Coal Board is giving serious consideration to many of the problems involved and should be assisted in every way. It is believed the Ministers of Mines' Conference can be of value to the national economy through continuation of the Standing Committee with the object of co-ordinating thought in the producing and consuming Provinces and through such other ways and means as may be required having in mind specifically the improvement and stabilization of Canadian markets for Canadian coal.

It is felt that there is no urgent need for a paid secretary but that one suitable person, nominated by the Provincial Ministers in Conference from year to year as chairman of the Committee, would serve as a liaison officer and through intimate knowledge of local conditions of the industry, could bring pertinent facts to the attention of the Conference for furtherance to the Board.

The chairman should report annually to the Conference and should be supplied with necessary funds by the Conference to defray incidental stenographic and other services and travelling expenses.

APPENDIX II

The Committee noted the questions raised by the Hon. Mr. Tanner. As the questions were addressed to the Dominion Coal Board they confined themselves to elucidating the questions and the following observations might be of interest to the Ministers.

- 1. It has been recognized over a long period that the coal problem is National in extent and has important implications in the Canadian economy.
- 2. The production aspects of the problem are reasonably well known, but the market aspects are much less well understood and in many instances are the subject of serious misunderstandings.

- 3. Briefly the Dominion imports between 20-25,000,000 tons of U.S. coal annually. The coal is vitally required in the Central Canadian markets, with particular reference to Ontario.
- 4. The National Coal Policy in the past has been to assist the Canadian Coal Industry to enter these markets mainly by the aid of railway subventions.
- 5. The limitations of this policy are serious if it is intended to reduce materially Canada's dependence on U.S. supplies of coal or to reduce its loss of U.S. dollars for coal expenditures. This is well noted in the Western Coal Operators' survey, the results of which appear in the copies of press reports attached hereto.
- 6. It does not appear that Canadian coal can effectively increase its contribution to this market without additional assistance.
- 7. The fundamental question is how far do the Central Canadian consuming provinces consider it essential to have Canadian sources of supply, for their specific coal requirements, to have the ready markets for their manufactured goods which are inherent in active coal mining communities, and to secure the Canadian economy against bankruptcy relative to U.S. trade in general. It would appear that support from Ontario is vital in strengthening the hand of Ottawa in formulating a Canadian Coal Policy devised to stimulate and sustain a healthy Canadian coal industry.

The Committee reviewed the proceedings of the 1948 Conference with special reference to the resolution calling for an expanded programme of Canadian coal production. (Sub para. 4 Item 4).

The Committee is unanimously of the opinion that:—

- 1. It is essential to the Canadian economy to have an increased production of Canadian coal.
- 2. To effect this increase, more extensive assistance must be given to the Canadian Coal Industry.
- 3. Despite the continued policy of subvention and other assistance rendered by the Federal Government over a long period, the operators and the potential consumers of Canadian coal have not gained sufficient confidence to make the necessary adjustments inherent in a programme of expanded production.

The Committee therefore recommends that the Ministers request the responsible Federal Minister to seek an appropriate occasion in the House of Commons to indicate a firm long term policy with respect to subvention and other assistance designed to give operators and potential consumers the necessary confidence to assure their full co-operation and participation in the expanded production programme.

PRESS REPORTS

Toronto, July 23, 1949.

Western Colliers Seeking Market for Huge Surplus

Concerned over inroads that natural gas and oil are making in their home market, Western Canada coal operators have come to Ontario seeking a new outlet for their product. At conferences behind closed doors with Mines Minister Welland Gemmell, the visitors have been informed there is a potential market for 500,000 tons of coal annually in Northern Ontario. But, they were warned, it is up to them to develop this market.

Mr. Gemmell said yesterday the Ontario Government will assist in every way in facilitating import of western coal. But the question of marketing from the standpoint of quality and competitive prices must be solved by the operators.

Northern Ontario is considered the most logical place to market the western coal. The southern part of the province is too close to United States coal fields to provide a competitive market.

Ontario's use of western coal reached its peak in 1942 when more than 300,000 tons were absorbed. Wartime regulations cut the amount and the volume now is 200,000 tons.

The Western representatives were headed by W. C. Whittaker, Secretary and Commissioner of the Western Canada Bituminous Coal Operators' Association, and V. A. Cooney, Executive Secretary of the Domestic Coal Operators' Association of Western Canada. They have gone to Ottawa to discuss the matter of obtaining preferred freight rates for hauling coal to this province.

Toronto, July 22, 1949.

Big Market in N. Ontario West Coal Dealers Told

A potential market for 500,000 tons of Alberta coal a year exists in Northern Ontario, Ontario Minister of Mines Welland S. Gemmell said today. This would top by 200,000 tons the amount of western coal previously marketed in Ontario in any one year.

The information was given to the western coal operators at a two-day conference here, arranged by the Minister of Mines at the request of the Alberta Coal Operators' Association, who have shown concern over inroads being made by competitive fuels, oil and gas in Western Canada.

Ontario, the conference was told, by Mr. Gemmell, is prepared to co-operate in every way in facilitating the importation of western coals, but the question of marketing from the standpoint of quality and meeting competitive prices is strictly a matter for the western operators. Assurance of Ontario's co-operation was also given by Premier Leslie M. Frost who met the western operators following the main conferences.

In view of Southern Ontario's proximity to other sources of coal, the conference agreed that Northern Ontario offered the best opportunity for expansion of importation from the west, particularly in connection with industrial coal. The western operators accepted the fact that it was up to them to meet competitive prices if they hope to develop and expand their markets in Ontario.

Importation of western coal reached its peak in this province in 1942 when over 300,000 tons were laid down. Federal wartime regulations forced drastic curtailment and it was only in 1946 western operators started getting back into the Ontario market, Mr. Gemmell said. Volume laid down in Ontario at present is about 200,000 tons annually.

The Western Coal operators were headed by W. C. Whittaker, Secretary and Commissioner of the Western Canada Bituminous Coal Operators' Association and V. A. Cooney, Executive Secretary of the Domestic Coal Operators' Association of Western Canada.

The operators have left for Ottawa where they will discuss with federal coal officials matters pertaining to marketing, and the national coal policy.

COMMITTEE 3 — PETROLEUM AND NATURAL GAS

Committee:

I. N. McKinnon, Chairman	M. G. Goudge	J. G. Spratt
Honourable J. H. Brockelbank	J. W. Hamilton	Walker Taylor
R. A. Brown	I. W. Jones	T. B. Williams
A. R. Crozier	A. D. Kingsford	C. T. R. Wilson
W. J. Dick	J. S. Richards	W. J. Wright

- 1. The Committee studied the Report of the Inter-Provincial Committee on Petroleum and Natural Gas (page 9) and recommends it for favourable consideration by the Ministers.
- 2. The Committee felt that Appendix 1 to the Report would be a most useful guide for all provinces in the preparation of legislation dealing with petroleum and natural gas.
- 3. Appendix 2 is a brief on taxation submitted by the Western Canada Petroleum Association. The Inter-Provincial Committee on Petroleum and Natural Gas was of the opinion that such a

brief should be prepared by the industrial members of the Committee. The industrial members, therefore, took up the matter with the Board of Directors of the Western Canada Petroleum Association who decided that, in view of the importance of the matter, a tax expert should be consulted for advice. The services of Mr. J. Ross Tolmie of Ottawa were then obtained. Mr. Tolmie is presently engaged in the practice of law in Ontario, after spending several years in the Department of Finance. He immediately set to work on the problem and after discussions with the Western Canada Petroleum Association submitted his recommendations. This report was in turn circulated among the producing and exploration members of the Association and Appendix 2 is the final result as unanimously approved by the Association Board.

In view of the vast sums of money now being expended in the attempt to make Canada self sufficient in petroleum products and the paramount importance of income tax in relation to the hazardous nature of the oil industry early consideration of the problem is urgent particularly if Canadian capital is to play its part in this new development.

The Government members of the Inter-Provincial Committee were not in a position to recommend the brief but were sympathetic towards it. It was unanimously agreed both by the Petroleum and Natural Gas Committee 3 and the Inter-Provincial Committee on Petroleum and Natural Gas that the matter was of sufficient importance to urge the Mines Ministers' to give it their immediate attention and if the contents are considered reasonable to give it their endorsation for favourable consideration at Ottawa.

4. In contrast with the position of only one year ago the rapid development of oil production in Western Canada is such as to exceed the present market which consists of the requirements of the Prairie Provinces.

Additional markets can only be secured by pipe line construction which will enable the oil to be transported economically over greater distances.

It is now proposed to build a pipe line to the head of the lakes which would open up a possible market in the United States.

At the present time there is a duty of $10\frac{1}{2}$ cents per barrel on all oil imported into the United States, although oil is imported from the United States into Canada duty free.

In order to facilitate the possible marketing of oil in the United States and thus improve the existing adverse trade balance with that country the Committee recommends to the Ministers that the Canadian Government make a study of this matter with a view to making reciprocal trade arrangements with the United States in respect to the marketing of oil in the two countries.

- 5. The Chairman of the Heavy Oil Committee reported to Committee 3 that one meeting had been held and that information had been supplied to the Lloydminster Petroleum Association to assist them in the preparation of a brief which was presented to the Royal Commission on Transportation at Edmonton asking for a reduction in freight rates on heavy oils.
- 6. The Committee recommends for the consideration of the Mines Ministers' the continuation of the Inter-Provincial Petroleum and Natural Gas Committee.

Report of Inter-Provincial Petroleum and Natural Gas Committee (Ministers of Mines)

At the Fifth Annual Conference of the Provincial Ministers of Mines of Canada, held at Jasper National Park, Alberta, September 2-4, 1948, the Committee on Petroleum and Natural Gas recommended the following matters for the consideration of the Ministers:

1. In view of the Dominion-wide shortage of heavy oils, coupled with the local surplus of these products which is rapidly developing in the prairie provinces, that the Ministers give consideration to the immediate appointment of a special committee to assemble the necessary data for the Ministers to present this problem to the proper Provincial and Dominion authorities for immediate action.

- 2. Appointment of a Continuing Inter-Provincial Petroleum and Natural Gas Committee with a paid secretary. The purpose of such committee would be to consider the following problems:
 - (a) The drafting of suggested petroleum and natural gas regulations as a guide to the Provinces in preparing legislation. It is considered advisable to develop uniformity in such regulations as far as possible.
 - (b) The function of the Committee would also be to advise the Ministers of problems involving taxation, freight rates, supplies for development, distribution of crude oils, and general topics as new conditions may warrant.

If the Ministers consider the above recommendations in order it is suggested that remuneration of a paid secretary be borne on a pro-rata basis by the different Provinces in proportion to their production and interest in petroleum and natural gas. It is also suggested that remuneration of such secretary might be borne by both government and industry. In accordance with this recommendation a special committee was appointed by the Ministers known as the Inter-Provincial Petroleum and Natural Gas Committee (Ministers of Mines).

Provincial Representatives:

Alberta. I. N. McKinnon, Chairman'
British Columbia. T. B. Williams
Manitoba. J. S. Richards
New Brunswick. W. J. Wright
Nova Scotia. M. G. Goudge
Ontario. A. R. Crozier
Quebec. I. W. Jones
Saskatchewan. W. J. Bichan

Industry Representatives:

Anglo-Canadian Oil Co. Ltd. J. G. Spratt
Brown, Moyer and Brown Ltd. R. A. Brown
California Standard Co. J. O. Galloway
Home Oil Ltd. J. W. Hamilton
Socony-Vacuum Exploration Co. C. S. Corbett
W. J. Dick, Secretary

GENERAL

Canada is dependent on other countries principally United States, for some eighty per cent of its supplies of petroleum and petroleum products. Recent developments in Alberta will, no doubt, prove to be a great factor in alleviating this condition; also oil exploration work now being carried on in most of the provinces, under favourable conditions, is expected to yield good results. Practically all provinces, including Yukon and North West Territories, have large areas where the geological conditions are favourable for petroleum and natural gas resources. We may, therefore, look forward to a time, in the not too distant future, when Canada will be self-sufficient in respect to its supply of petroleum and petroleum products. Natural gas is produced in quantity in Alberta and to a lesser extent in Ontario, New Brunswick, British Columbia, and Saskatchewan. The problem in Canada is, therefore, one of taking the necessary steps to bring about the development of these potential resources.

WORK OF THE COMMITTEE

General Considerations — The Committee began to function on January 1st, 1949, and three-day meetings of the Committee as a whole were held in Edmonton, March 3, 4 and 5, and in Winnipeg, June 1, 2 and 3. Several meetings were held from time to time, with industry representatives. Industry representatives also held a number of meetings in Calgary.

At the outset, and in order to form a background of suggested legislation, practically all the existing Acts and Regulations in respect to petroleum and natural gas in Canada were summarized and distributed to all members of the Committee. Studies were also made respecting similar legislation in the United States as well as rules and regulations as recommended and in use by the Interstate Oil Compact Commission.

Oil Exploration

Oil prospecting and drilling technique has, recently, developed to such an extent that areas in Canada that had formerly been prospected and drilled are worthy of being gone over again. Oil exploration requires the expenditure of large sums of money, the use of complicated and expensive equipment and the employment of skilled and experienced personnel. In view of the above it may be generally stated that this development can best be carried out by those regularly engaged in oil exploration and production.

The several basic factors to be considered in oil and natural gas development are:

- (a) The rights of the Crown.
- (b) The interesting of capital to bring about development.
- (c) Development and production be done in an efficient and most approved manner.
- (d) Conservation or elimination of waste.
- (a) Rights of the Crown In the younger provinces of Alberta and Saskatchewan and the Northwest Territories a large portion of the more favourable geological areas are on Crown lands and the mineral rights are still vested in the Crown. There are, also, favourable geological areas for petroleum development in practically all provinces in which the mineral rights have been disposed of, in whole or in part. Nevertheless, whether the mineral rights are disposed of by leasehold or freehold, the crown is interested in oil and natural gas development and production in the best interest of all concerned.
- (b) Interesting Capital in Development and Production As outlined previously this work can best be carried on by companies organized and skilled in this type of work. Resources are of no value to society unless developed and put to use and there can be no production of petroleum and natural gas development without the consequent risk in the search for and drilling for oil and natural gas, therefore, consideration must be given in the Act and regulations both in regard to the disposition and use of mineral lands and the manner of their disposition to interest the necessary capital to bring about exploration development.
- (c) Development and Production As the Crown is interested, principally in discovery and development with the consequent revenues derived from rentals, royalties and taxation, it requires active work be carried on in exploration and drilling; also that such work be done in the most approved manner so as to secure, not only efficiency in operations but to safeguard the resources from all unnecessary waste.

Conservation — Experience in this country and other countries has demonstrated the necessity of establishing adequate conservation measures for the prevention of waste and the securing of the greatest economic recovery from our oil and gas resources.

PETROLEUM AND NATURAL GAS LEGISLATION

All of the factors above mentioned, require more or less legislation to deal with each specific problem in respect to prospecting and drilling, disposition of mineral rights, the manner in which the work shall be done in each case, and the conservation measures required to protect oil and natural gas resources from waste.

(a) Acquisition of Mineral Rights

Freehold lands — The parties concerned make their own contract covering terms and conditions of lease but there is usually provision for the lessee to carry out drilling and production in accordance with the Provincial regulations in force.

Crown lands — Crown lands may be obtained under lease subject to certain terms and conditions prior to any surface or sub-surface exploratory work, or may be obtained out of areas covered by an exploration permit which gives the permittee the right to lease certain of the acreage provided he has complied with the terms of the permit.

(b) Drilling and Production

It is of the utmost importance that all drilling operations be conducted in such a manner as to prevent sub-surface waste and the contamination of fresh water zones, also that adequate protection be given to life and property by taking measures to prevent blow-outs.

(c) Conservation

- (a) Provision should be made to effect the conservation of oil and gas resources of any province.
- (b) To prevent waste thereof.
- (c) To give each owner the opportunity of obtaining his just and equitable share of the production of any pool.

RECOMMENDATIONS

The Committee, therefore, recommends to the several provinces, other than Alberta, where large development and production has already been secured, the following steps to be taken in making enactments dealing with the whole subject of petroleum and natural gas development, production and conservation; in the early stages of development one Act would suffice to provide by Regulations or otherwise:

- Part I (a) Disposition of Petroleum and Natural Gas Rights, the property of the Crown.
- Part II (b) Geological or Geophysical Exploration (License to operate in the Province).
- Part III (c) Drilling, Production, and Conservation.

In any province, after production of oil and/or natural gas is secured and development and exploration is being carried out on a large scale it would enter a second stage and the Committee recommends that at this stage such province should establish a Regulatory Board with jurisdiction over drilling, production, and conservation measures. Upon the establishment of such Board it may be found advisable to have separate Acts, one dealing with the disposition of Crown Rights and the other dealing with drilling, production, and conservation measures.

Part I and Part II

The Committee has prepared suggested drafts of the following: Part I (a), Part II (b) together with Regulations Governing Exploration Permits of Petroleum and Natural Gas Rights, the Property of the Crown, for Geological or Geophysical Examination, or for Drilling of Wells for Geological Information Established by Order in Council. (See Appendix I, page 13).

NOTE: In this Act and regulations certain sections deal with Crown Reserves but it must be understood that the Committee is not recommending Crown Reserves, or decrying same, but the sections are included where provinces adopt this policy. The Committee is of the opinion that the establishment of Crown Reserves, or otherwise is a function of Government policy and therefore should be left to the discretion of each province.

Part III

Drilling and Production and Conservation

As Alberta was the only province that had extensive experience with drilling and production it was deemed that the Oil and Gas Wells Act of Alberta could be used as a guide for other provinces, in the preparation of their own regulations.

Conservation

As in the case of drilling and production regulations it was deemed that the Alberta Oil and Gas Resources Conservation Act could be used as a guide in formulating regulations in respect to conservation measures in any province.

The Committee, however, recommended that drilling and production regulations and conservation regulations should be contained in one Act rather than in separate Acts.

(Certain proposed amendments to the Alberta Oil and Gas Resources Conservation Act were discussed by the Committee but it was felt that there had not been sufficient time to study them in order to make any definite recommendations).

Taxation

The question of taxation is an important one to the oil and gas industry and the general opinion of the Committee was to the effect that the industry was more heavily taxed in more ways than any other industry in Canada, not excepting the gold and metal mining industries. On the recommendation of industry representatives the brief of the tax committee of the Western Canada Petroleum Association is submitted. (See Appendix II, page 27).

APPENDIX I

SUGGESTED MODEL PETROLEUM AND NATURAL GAS ACT

Part I

Disposition of Petroleum and Natural Gas Rights the Property of the Crown.

- (3) Each lease shall be subject to all of the provisions of this Act and the regulations in force from time to time during its currency and each renewal thereof shall be granted in accordance with the provisions of this Act and the regulations in force at the time of the granting of such renewal and shall be subject to all of the provisions of this Act and the regulations in force from time to time during its currency.
- 2. (1) A location shall be square or rectangular in shape.
- (2) The maximum area of a location in the form of a square shall be sections or acres and in the form of a rectangle shall be sections or acres.
- (3) Except as otherwise provided in sections 3, 30, and 32 the minimum area of a location shall be a quarter section.
- (4) The maximum length of the tract shall be miles and in no case shall the length exceed..... the breadth.
- 3. (1) If the tract applied for is situated in surveyed territory, it shall consist of sections or quarter-sections.

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- (2) Notwithstanding subsection (1), an application for a lease out of an area under exploration permit may comprise a legal subdivision or adjoining legal subdivision or any portion of a legal subdivision where the holder of an area under exploration permit submits evidence satisfactory to the Minister that he has the right to the petroleum and natural gas in the balance of the legal subdivision.
- (3) The lease granted shall remain in force so long as the applicant continues to have the right to the petroleum or natural gas in the balance of the legal subdivision and complies with the provisions of this Act.
- 4. (1) In unsurveyed territory the tract shall be laid out with boundary lines running north and south and east and west astronomically and the measurements thereof shall be horizontal.
 - (2) The length and breadth of the tract shall befeet each or multiples thereof.
- (3) The tract may be laid out with the longer boundary lines running north and south or east and west.
- 5. No lease shall be granted to any applicant who is indebted to the Province for royalty on petroleum or natural gas.
- 6. (1) Application for a lease of petroleum and natural gas rights shall be filed by the applicant in person with the Mining Recorder for the district in which the rights applied for are situated.
- (2) Where the applicant holds the rights under exploration permit any application for a lease or leases shall be filed by the applicant with the Director.
- (3) Any application for a lease shall be subject to review by the Director who may refuse or confirm same.
- 7. (1) Application for a tract situated in unsurveyed territory shall contain a description by metes and bounds and shall be accompanied by a plan in duplicate showing the position of such tract in its relation to some prominent topographical feature of the district or some other known point and to locations in the immediate vicinity, and the plan shall also show the adjoining Crown reserves required by paragraph (d) of section 42.

EXPLANATORY NOTE: If the policy of Crown Reserves is not established delete the words, "and the plan shall also show the adjoining Crown reserves required by paragraph (d) of Section 42."

(2) Application shall be made within......days from the date the tract was staked, andextra days shall be allowed for every additional.....miles or fraction thereof that the tract is distant more than.....miles in a direct line from the office of the Mining Recorder.

Sections 8 to 15 inclusive, dealing with staking and surveys have been omitted as this is largely a matter that can be dealt with by provincial preference, however a Committee of the industry representatives are studying this matter and are submitting a report.

Work Required to Be Done

- (2) The lessee shall within the same period furnish evidence, supported by affidavit, showing the type, quantity and value of the machinery so installed, the date of its installation and the particular parcel of land upon which it is installed.
- 17. The lessee shall commence drilling operations on the location within.....years from the date of the lease and he shall continue such drilling operations with reasonable diligence to the

satisfaction of the Minister with a view to the discovery of petroleum or natural gas, provided however that the Minister may prescribe conditions for the payment of a fee or otherwise under which the drilling obligations on any lease may be deferred in any one year.

- 18. Upon the abandonment of a well the lessee shall commence the actual work of drilling another well on the location within..... months unless the Minister has given his consent in writing to the suspension of the drilling operations, and prescribed the terms on which his consent has been granted.
- 19. Upon the completion of a well the lessee shall within......days commence the actual work of drilling another well on the location unless the Minister has given his consent in writing to the suspension of the drilling operations, and prescribed the terms on which his consent has been granted.
- 20. The Lieutenant Governor in Council at any time may make regulations requiring additional drilling to be conducted on a location or group in the search for petroleum or natural gas having due regard to market requirements and the maintenance of adequate reserves, provided, however, in no case shall a lessee be required to operate, at any one time, more than one 'string of tools' for every......acres under Crown lease.
- 21. (1) A lessee who in the search for petroleum claims to have made a discovery of natural gas that indicates the area to be a natural gas field, and through drilling of wells adequately spaced to the satisfaction of the Minister reasonably delimits the field within the confines of his lease or leases thereby substantiating his claim, shall thereafter pay to the Minister an annual rental of..... cents an acre payable yearly in advance so long as the location is capable of producing natural gas.
- (2) Before the reduction in rental becomes effective, the Minister may require the lessee to drill a well in the search for oil at a point and to a formation fixed by the Minister.
- (3) While an adequate market or a market in which the lessee may participate is not available, the Minister upon being satisfied of such facts, may further reduce the rental of the location to an annual rental of cents an acre.
- (4) During the year in which the further reduced rental is accepted by the Minister, the lessee shall be relieved from the development requirements of his lease.
- (5) If a discovery of petroleum is made in any subsequent well drilled, the provisions of this section shall immediately become null and void and the lease shall revert to its original status.
- 22. (1) If in the opinion of the Minister petroleum is being produced in commercial quantities on lands held in freehold in a well directly off-setting a location, the lessee within......days of the date of such well coming into production shall commence the drilling of a well on the location to offset the producing well and shall drill the same continuously and diligently to the strata where the petroleum was discovered.
- (2) The Minister may, from time to time, extend the time for the commencement of the drilling of such offset well.
- (3) If, in the opinion of the Minister, natural gas is being produced in commercial quantities on lands held in freehold in a well directly offsetting a location, the Minister, having due regard to market requirements and after consultation with the lessee, may require the lessee to commence the drilling of a well within such period as may be determined by the Minister on the location to offset such producing well and the lessee shall drill the same continuously and diligently to the strata where the natural gas was discovered.

Terms and Conditions of Lease

- 23. (1) The prescribed fee and the rental for the first year shall accompany each application for a lease.
- (2) The fee and rental shall be refunded if the rights applied for are not available, but not otherwise.

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- 24. (1) The lease shall bear the date of issue which also shall be the commencement of the term; except where the application follows an exploration permit the term of the lease shall commence on the day the application was made.
- (2) If during the term of the lease the lessee fails to pay rental in advance for each subsequent year within thirty days after the date upon which the same became due, whether demand is made or not the Minister in his discretion may cancel the lease.
- (1) (b) The Minister may at his discretion permit two or more lessees within an approved area to group for development such leases on Crown and privately owned lands any portions of which are situate within a radius of miles of the projected well site, but not more than acres shall be included in any group.
- (2) The group shall terminate immediately if in the opinion of the Minister, petroleum has been found in commercial quantities.
- (3) A well drilled on a location contained in a group shall fulfil the drilling obligations on the group in the same manner as the drilling of a well on a location pursuant to sections 16, 17, and 18.
- (4) Where the lessee suspends operations for a period greater than six months without having first obtained the consent of the Minister, such suspension shall immediately terminate the group.

- (2) The portion of the location to be retained shall conform to section 2.
- 27. (1) The lease shall in all cases include only the petroleum and natural gas which is the property of the Crown in the location leased, and which may be obtained by the usual process of drilling.
- (2) The lease shall not include the rights to bituminous sands, oil shales, and tar sands, or to the petroleum which may be recovered from such sands or shales by the process of extraction customary in such cases.
- 28. The lease shall be in such form as may be determined by the Minister and may include a condition providing that the natural gas produced shall be used or processed within the Province, and such other conditions, provisions, restrictions, and stipulations as the Minister may prescribe.

EXPLANATORY NOTE: The Committee was of the opinion that Sec. 28 deals with Government policy and therefore could not express an opinion on same except that it believed that any Province had the right to decide matters that they considered to be in their best interest.

Transfer of Rights

- 29. The lessee shall not assign, transfer, sublet, or part with the possession of the rights described in his lease, or any part thereof, without the consent in writing of the Minister being first had and obtained.
- 30. Where a well has been drilled on a location and is producing petroleum in commercial quantity the lessee may, with the consent in writing of the Minister, assign or transfer the area allocated to the well for the purposes of production by a Regulatory Body.
- 31. Where the location is situate in unsurveyed territory and the lessee wishes to assign a portion

of it after obtaining the consent of the Minister he shall have a survey made of the new location in accordance with the Provisions of Section 13 and the survey shall be confined within the boundaries of the original tract.

UNIT OPERATIONS: NOTE: The Committee endorsed the principle of unit operations but agreed that such a policy should be started slowly under favourable circumstances and advance step by step depending on results secured. It was agreed that the Regulatory Body assist in the promotion of unit operations.

- 33. (1) The petroleum and natural gas from any location acquired under this Act shall be subject to the payment to the Crown of such royalty thereon as may from time to time be fixed by the Lieutenant Governor in Council.
 - (2) The royalty shall be collected in such manner as may be prescribed by the Minister.
- (3) If the lessee fails or neglects to make prompt payment of the royalty the Minister may cancel the lease.
- 34. The maximum royalty payable on the petroleum during theterm of any lease issued pursuant to this Act shall not exceed oneth of the gross recovery from the location.

NOTE: The Committee recommends that the maximum royalty not exceed one sixth.

- 35. Where the area assigned to a well for purposes of production by The Regulatory Body is only partially contained in a location, the royalty to be paid to the Crown shall be in the proportion which the area partially contained in the location bears to the whole of the area assigned to the well.
- 36. (1) When petroleum or natural gas is obtained from any well the lessee or his lawful attorney shall file with the Department, not later than the twenty-fifth day of the month, on forms prescribed by the Minister a full report of the production during the preceding month.
- (2) If, after the lessee of the location has been requested in writing to forward any overdue return, the Minister deems it necessary to send an officer of the Department to secure the same, the Minister may charge to the lessee the expenses incurred in connection with securing such return.
- (3) If the lessee fails or neglects to make payment of the expenses so incurred the Minister may cancel the lease summarily.
- (4) If any person attempts to defraud the Crown by withholding any part of the revenue thus provided for by making false statements, in his discretion the Minister may cancel the lease summarily.
- (5) In respect of the facts as to fraud or false statements or non-payment of royalty, or failure to furnish returns the decision of the Minister shall be final.

Miscellaneous

37. In case of default or emergency, the Minister may at any time assume absolute possession and control of any location, if in the opinion of the Lieutenant Governor in Council, such action is considered necessary or advisable, together with all buildings, works, machinery, and plant upon the location, or used in connection with the operation thereof, and he may cause the same to be

operated and may retain the whole or any part of the output, in which event compensation shall be paid to the lessee in such sum or sums as may be agreed upon by the Minister and the lessee, and failing agreement the matter to be referred to a competent judicial body; such sum or sums, as may be fixed, to be compensation for any loss or damage sustained by the lessee by reason of the powers conferred by this provision.

- 38. (1) The consent of the Minister or his duly authorized representative shall be obtained before the commencement of any action for the abandonment of a well whether or not petroleum or natural gas has been produced therefrom.
- (2) Before giving his consent to the abandonment of a well the Minister or his duly authorized representative may require a lessee to conduct such further operations as the Minister may deem necessary and prescribe the time in which such operations shall be performed.
- (3) The Minister may, on the failure of the lessee to perform such requirements, immediately withdraw from the lease the legal subdivision on which the well was drilled or the area that has been allocated to the well for purposes of production by a Regulatory Body and all rights of the lessee in and to such portion of the lease shall thereupon cease and determine and the lessee shall not be entitled to any compensation whatsoever, but shall be relieved from future responsibility for the abandonment of the well.

- 40. When a petroleum and natural gas application exploration permit or lease is cancelled in the records of the Department, the rights described in such application, reservation or lease shall not again become available for disposition until notice has been given in such form as the Minister may direct.
- 41. The Lieutenant Governor in Council may, from time to time, make such regulations as may appear to be necessary or expedient for the administration of this Part and to carry out its provisions according to their true intent.

NOTE: Sections 42 to 45 inclusive refer to Crown Reserves and are only applicable to Provinces establishing Crown Reserves.

- 42. The petroleum and natural gas rights which are the property of the Crown in the areas hereinafter described are constituted Crown reserves:
 - (a) fractional areas which cannot be acquired by lease under section 2;
 - (b) the areas within the following provincial reserves (listed)
 - such area in surveyed territory as the Mining Recorder, in consultation with the applicant for a lease of a location, selects as a Crown reserve, which area shall:
 - (i) be as nearly as possible of equal acreage to the location applied for;
 - (ii) be in the same township in which the location or part of the location applied for is situate and in close proximity to it;
 - (iii) be agreed to by the applicant before his application for the location is accepted;

- (iv) in case of non-agreement the matter shall be referred to the Minister whose decision shall be final and until such decision has been made the lands in dispute shall not be disposed of.
- (d) such areas of adjoining acreage in unsurveyed territory as may be necessary to create a Crown reserve along each boundary of the location applied for equal in breadth to the breadth of the location applied for; provided, however, that locations may corner, and a Crown reserve or any part thereof already established may be used to meet the Crown reserve requirements of further locations;
- (e) such areas as may be determined by regulations made by the Lieutenant Governor in Council governing the exploration permit of petroleum and natural gas rights, pursuant to section 45.
- 43. No application for a lease of a location shall be taken at the office of the Mining Recorder unless:
 - (a) in surveyed territory the locations or concentrations of leases in the area in which a location may be taken corner in a checkerboard pattern or are apart, one from the other, a distance of at least one mile;
 - (b) in unsurveyed territory the applicant has staked his location in a manner to permit the establishment of the Crown reserves.
- 44. Crown reserves may be disposed of, from time to time, on a cash basis by public tender to the highest bidder, subject to the usual royalty prevailing on Crown leases and subject to such terms, conditions, and stipulations as may be prescribed by the Lieutenant Governor in Council.
- 45. The Lieutenant Governor in Council may make regulations governing exploration permits dealing with petroleum and natural gas rights which are the property of the Crown, for geological or geophysical examination or for drilling of wells for geological information and such regulations may prescribe the manner in which applications for leases shall be taken and may provide for the establishment of Crown reserves.

PART II

GEOPHYSICAL AND GEOLOGICAL EXPLORATION

Interpretation

- 46. In this Part, unless the context otherwise requires:
 - (a) "detailed geophysical exploration" or "detailed sub-surface geological exploration" means surveys of specifically limited areas for the purpose of obtaining local, geologic or geophysical data;
 - (b) "detailed geophysical methods" include:
 - (i) closely spaced seismic reflection or refraction surveys;
 - (ii) closely spaced core drilling;
 - (c) "geophysical exploration" or "geophysical operation" means any method whereby the art of applying the physical sciences is employed in the determination of geologic conditions which may be favourable for the accumulation or location of minerals;
 - (d) "geophysical methods" include:
 - (i) seismic surveys;
 - (ii) gravimetric surveys;
 - (iii) magnetic surveys;
 - (iv) electrical surveys;
 - (v) geochemical surveys;

- (e) "preliminary geophysical exploration" or "preliminary sub-surface geological exploration" means exploration by surveys of widespread areas for the purpose of obtaining regional data:
- (f) "preliminary geophysical methods" include:
 - (i) gravametric:
 - (ii) magnetic:
 - (iii) electrical:
 - (iv) seismic profiling:
 - (v) regional or profile core drilling;
- (g) "subsurface geological exploration" means any method employing shallow drill holes for obtaining geologic data not observable at the surface.

Application of Part

47. This part applies to all lands in the Province.

General

- 48. (1) Any person desiring to undertake geophysical or subsurface geological exploration shall obtain a license to do so from the Director of Mineral Rights.
- (2) The license shall expire on the thirty-first day of March following the date of issue, and may be renewed upon such terms and conditions as the Minister may deem expedient.
 - (3) The prescribed fee shall be paid for each license or renewal.
- 49. (1) Where the applicant desires to conduct preliminary geophysical or subsurface geological exploration he shall make application for a license to the Director indicating the type, extent, and general location of the exploration to be undertaken.
- (2) Upon completion of the work and within a reasonable time thereafter, but not exceeding with:
 - (a) a statutory declaration with respect to expenditures incurred;
 - (b) maps showing areas covered by the survey or surveys together with the location of shot holes and core holes drilled and their elevations.
 - (c) all information obtained concerning the presence of water, coal, gravel, sand or other potentially useful minerals revealed by the shot and core holes;
 - (d) a summary report.
- 50. (1) Where the applicant desires to conduct detailed geophysical or subsurface geological exploration within a designated area the application shall be made in writing to the Director and the applicant shall state the type, extent and location of the exploration, and the time estimated to complete the survey.
- (2) Upon completion of the work and within a reasonable time thereafter, but not exceeding months after the date of the completion, the licensee shall furnish the Department with:
 - (a) a statutory declaration with respect to the expenditures incurred in the survey of the particular area;
 - (b) a map showing the location of shot-holes and core holes drilled and their elevations;

- (c) information regarding the presence of water, coal, gravel, sand or other potentially useful minerals as revealed by shot and core holes;
- (d) a summarized preliminary report setting out the regional geologic features of the area surveyed interpreted on the basis of the factors and the necessary assumptions involved.
- 51. The licensee shall report monthly to the Department the location and progress of the field party conducting the exploration.
- 52. If any licensee withdraws from the Province and discontinues doing business in the Province copies of all preliminary or detailed geophysical data and subsurface geological data obtained by him shall become the property of the Province and may be used after one year in any manner which may expedite development of the natural resources.
- 53. The licensee shall not assign, transfer, sublet, or part with the possession of the said license or any renewal thereof without first having the written consent of the Minister.
- 54. (1) Any applicant whose place of business is outside the Province shall, before the issue of a license, furnish a cash bond to the Minister in the sum of as security that all operations shall be conducted in accordance with this Act and the regulations made from time to time.
- (2) The Minister shall refund the cash bond to the licensee immediately upon evidence being furnished, satisfactory to the Minister, that the operations were conducted in accordance with this Act.
- 55. In case of default by the licensee in the due observance or compliance with any of the provisions of this Act the Minister may at any time cancel the license and thereupon the cash bond shall be forfeited.
- 56. The Lieutenant Governor in Council may make regulations from time to time to facilitate the administration and control of geophysical and geological exploration in the interest of public safety and to carry out the provisions of the Act.
- 57. Every person who contravenes any of the provisions of this Part shall be guilty of an offence and liable upon summary conviction to a fine which in the case of a corporation shall not exceed dollars for a single offence, or dollars a day for a continuing offence, and in the case of a natural person, shall not exceed dollars for a single offence, or dollars a day for a continuing offence, together with costs in every case.

REGULATIONS GOVERNING EXPLORATION PERMITS OF PETROLEUM AND NATURAL GAS RIGHTS, THE PROPERTY OF THE CROWN, FOR GEOLOGICAL OR GEOPHYSICAL EXAMINATION, OR FOR DRILLING OF WELLS FOR GEOLOGICAL INFORMATION ESTABLISHED BY ORDER IN COUNCIL

(Model Regulations as Suggested by the Inter-Provincial Petroleum and Natural Gas Committee)

Interpretation

1. For the purpose of these regulations:

"Board" means the Board appointed pursuant to the provisions of Section 2.

"Department" means the Department administering the Act under which the Regulations are established.

"Director" means the Director of the Department.

"Geophysical Examination", in addition to its ordinary meaning includes any investigations relating to sub-surface geology.

"Minister" means the Minister administering the Department.

"Secretary" means the Secretary of the Board appointed pursuant to the provisions of Section 2.

- 2. (1) There shall be a Board of Arbitrators which shall consist of three members one of whom shall be appointed as Chairman by the Lieutenant Governor in Council and the other two members shall be appointed by the Minister.
- (2) The Secretary of the Board shall be appointed by the Minister and shall be a member of the Department.
- (3) The Director may receive applications for Exploration Permits of petroleum and natural gas rights, the property of the Crown, and where representations are made of a satisfactory prospecting programme to be undertaken an exploration permit of such petroleum and natural gas rights in the area may be made subject to the provisions of these regulations.
- 4. (1) Each application for an exploration permit must be accompanied by the following:
 - (a) a fee of \$.....
 - (b) a deposit of \$.....for each.....acres or portion thereof comprising the area on which the examination is to be made.
 - (c) a summary report of the available geology of the permit area.
 - (2) The deposit may be made in cash or negotiable bearer bonds of the Dominion of Canada or the Province of
 - (3) The fee and deposit shall be refunded if the application is not granted.
- 5. (1) An area under exploration permit may issue without describing therein the property of the Crown, but whenever an exploration permit has been so issued the Director shall within six months furnish to the holder of the permit a description of the rights that have been so reserved and shall refund to him the portion of the deposit, if any, in excess of the sum required for the rights of the property of the Crown.
- (2) Any person who has defined on the ground in unsurveyed territory prior to the establishment of the exploration permit on the location in the manner prescribed by the Act (dealing with Leases) and who makes application at the office of the Mining Recorder within the delay prescribed by the said Act, shall have prior rights to the lease and such location shall automatically be withdrawn from the area under exploration permit.

Note: Alternate to Sec. 5 (2) to apply to Provinces which have established the policy of Crown Reserves.

Alternate Sec. 5 (2).

- 5. (2) Any person who has defined on the ground in unsurveyed territory prior to the establishment of the exploration permit on the location in the manner prescribed by the Act (dealing with Leases) and who makes application at the office of the Mining Recorder within the delay prescribed by the said Act shall have prior right to the lease and such location with the Crown reserve created thereof shall auomatically be withdrawn from the area under exploration permit.
- 6. (1) No geophysical examination shall be conducted unless the person or company conducting such examination has obtained a license from the Province.
- (2) No exploration permits shall be granted for an area of more than.....acres. The length of the tract comprising the area under permit shall not be greater than.....times its breadth.
- (2a) As development progresses, in any area the Minister may reduce the size or area covered by permits and may modify or change the terms and conditions of permits to meet the new conditions.
- (2b) The Minister may set up areas on which no exploration permits would be issued, and require exploration and development carried on under leasing instead of exploration permits in certain highly developed areas.
- (3) The maximum number of exploration permits that may be held at any one time by an applicant under these regulations shall not exceed......
- (4) An area under exploration permit or any portion thereof shall not be assigned, transferred or sublet but nothing in these regulations shall preclude an applicant from having the work performed for him.
- 7. The deposit shall be held by the Department as a guarantee that an expenditure will be made in accordance with these regulations in approved geological or geophysical examination, or drilling of wells or geological information and the deposit shall be subject to forfeiture unless evidence is furnished that during the period of the reservation an expenditure satisfactory to the Minister was incurred for the purposes mentioned.
- 8. The term of an exploration permit shall be..... months from the operative date and a permit which is issued between the first of October and the thirty-first of December in any year shall become operative the first day of January following, while the operative date of any exploration permit otherwise issued shall be the date of its issue.
- 9. (1) A plan detailing the nature of the proposed examination setting out the work to be done during certain stipulated periods must be submitted to the Director for approval within days from the operative date of the exploration permit and if the plan is approved by the Minister there must be submitted to the Director within months of the operative date, the following:
 - (a) evidence of the engagement of qualified personnel.
 - (b) date when the examination will commence, which date must be acceptable to the Director.
- (2) Upon compliance with subsection (1) the exploration permit shall be renewed for a period of months.
- (3) The exploration permit shall be renewed for a further period of months upon the holder of the exploration permit filing with the Department a detailed progress report showing that satisfactory work has been conducted and an estimate of the cost thereof.

- (4) The plan of the examination as approved may not be subsequently varied in any way without the consent of the Minister.
- 10. If the holder of the exploration permit is continuing the examination to the satisfaction of the Minister the permit shall be extended upon application for further renewals of months each, not exceeding a total of renewals upon payment by the holder of the exploration permit at the time of the granting of each renewal of a fee in cash for each and every acre comprised in the permit. The first renewal under this section shall be granted for a fee of cents an acre, the second renewal for a fee of cents an acre, the third renewal for a fee of cents an acre and the fourth renewal for a fee of cents an acre.

EXPLANATORY NOTE: In Sec. 10 and Sec. 12 renewals to be granted on the basis of the payment of a graduated fee per acre, increasing with each renewal.

- 11. Where the nature of the terrain or inaccessibility of the area under permit or of any other condition over which the holder of the permit has no control, precludes the carrying out of the detailed investigation or examination forming part of the approved plan, within the periods of time specified in Section 10, upon the recommendation of the Board, the Minister may extend the exploration permit for such further renewal or renewals of months each, not exceeding a total of renewals, upon such terms and fees and subject to such conditions including the imposition of a penalty as may be prescribed by the Minister at the time of the granting of such renewal or renewals.
- 12. Where drilling for the discovery of oil is being conducted within an area under exploration permit at the close of the final renewal granted pursuant to Sections 10 and 11 and is being continued to the satisfaction of the Minister in the first or any subsequent well, the exploration permit shall be extended for further periods of months each, not exceeding a total of renewals upon payment by the holder of the exploration permit at the time of the granting of each renewal of a fee in cash for each and every acre comprised in the exploration permit. The first renewal under this section shall be granted for a fee of cents per acre, the second renewal for a fee of cents per acre and the third renewal for a fee of cents per acre and the fourth renewal for a fee of cents per acre and the fourth
- 13. Where a deep test drilling programme is undertaken on an area under an exploration permit and it is impossible to complete the programme before the expiration of the exploration permit, upon the recommendation of the Board, the Minister in his discretion may extend the permit for further renewals of months each not exceeding a total of renewals, the fee in cash for each such renewal shall be cents an acre.
- 14. Where satisfactory evidence is furnished that by reason of weather, physical or other conditions, and through no fault of the holder of the exploration permit, the examination has been delayed, the permit may be renewed without presentation of progress reports upon such terms and subject to such conditions, including the imposition of a penalty, as may be prescribed at the time of the granting of such renewal.
- 15. (1) Holders of exploration permits wishing to apply for renewals under Section 11 or Section 13 shall submit an application in writing to the Minister setting forth the reason for making the application, and the Minister shall forthwith refer the application to the Board which shall sit and hear the case before the end of the following month. The Secretary shall forward written notice of the hearing not later than days before it is to be held to the person making the application and to any other persons who in the opinion of the Board may be able to furnish petinent information.
- (2) Upon completion of the hearing the Board shall expedite its report on the case together with its recommendation to the Minister, who shall advise the applicant of his decision.
- 16. (1) Before the termination of the exploration permit, the holder of the permit shall furnish to the Director a report including a map or maps showing the factual data obtained in the geological

and geophysical examination, together with the logs and electrologs of any wells drilled, and such further information and data as the Minister may require from the holder of the exploration permit.

- (2) The holder of the exploration permit shall also furnish to the Director a statutory declaration setting forth the several items of expenditure incurred in the examination and the specific purpose for which each such item was expended.
- 17. The holder of an exploration permit, subject to Sec. 9 (4) may relinquish at any time, or from time to time, any portion of the lands comprised in the permit, but no refund shall be made of any fee paid by him.
- 18. (1) The exploration permit may be terminated at any time at the option of the holder of the permit and, provided he has complied with the provisions of these regulations, he shall have the exclusive right before the expiration or determination of such permit to acquire by application a lease or leases of the petroleum and natural gas rights within the tract described in the permit (exclusive of any Crown reserve).
- (2) At any time during the currency of an exploration permit the holder of the permit shall, provided he has complied with the provisions of these regulations, be permitted to acquire by application a lease or leases of the petroleum and natural gas rights out of the area under permit, (and upon establishment of the Crown reserve or reserves) the permit comprising the remainder of the lands shall continue subject to the provisions of these regulations.

EXPLANATORY NOTE: The whole of Sec. 18 (3) may be omitted in provinces that do not have a policy of establishing Crown reserves out of exploration permits.

- (3) Where a well drilled on an exploration permit has, in the opinion of the Minister, determined the presence of oil in commercial quantity the holder of such permit shall within.... months of the discovery apply for a lease or leases of the petroleum and natural gas rights containing the discovery well and the commencement of another well within.....miles of the discovery well will not be permitted until the application for the lease or leases has been made, provided, however, that the holder of an exploration permit may with the written consent of the Director commence a well or wells within a distance of not more than 300 feet of the discovery well and drill same to a different oil or natural gas horizon before applying for a lease or leases of the petroleum and natural gas rights containing the discovery well.
- (4) Where all requirements and obligations under these regulations have been complied with, the filing by the holder of the exploration permit of an application for a lease or leases of petroleum and natural gas rights out of the area under permit shall confer upon the applicant, pending the issuance of a lease or leases covering the area for which application has been made, all the rights and obligations which are conferred upon a lessee.
- 19. Where the drilling of wells is being conducted on an exploration permit in absence of any other type of geophysical examination a period of not more than.....months shall be permitted between the abandonment of a well and the commencement of another well, or such other form of examination satisfactory to the Minister.

EXPLANATORY NOTE: The Acts referred to in Section 21 are Acts dealing with leases, production and conservation together with the regulations provided for under these Acts. In the early stages of development certain provinces may require only one Act with enabling powers to deal with leases, exploration permits, drilling and production, and conservation.

20. Upon receipt of evidence that the holder of the exploration permit has incurred, during the term of the permit, expenditures in actual geophysical or geological examination of the permit area

or in drilling of a well or wells in the lands comprising the area, credit may be granted for an amount not exceeding.....per cent of the approved expenditures and the credit so granted may thereupon be applied to the rental for.....year(s) of any lease or leases acquired out of the permit or leases.

Alternate Sec. 20.

- 20. Upon receipt of evidence that the holder of the exploration permit has incurred, during the term of the permit, expenditures in actual geophysical or geological examination of the permit area or in drilling of a well or wells in the lands comprising the area, credit may be granted for an amount not exceeding......per cent of the approved expenditures and the credit so granted may thereupon be applied to the rental of any lease or leases acquired out of the permit.
- 22. In case of default by the holder of the exploration permit in the due observance of and compliance with any of the terms or conditions under which the permit was granted, the Minister shall cause written notice to be given to the holder of the permit that it is the intention to cancel such permit for the reason set forth in the notice unless within...... days after issue of the notice the holder of the exploration permit shows cause to the contrary, to the satisfaction of the Minister, the Minister may cancel the permit within....... days and the decision of the Minister shall be final and there shall be no appeal therefrom.
- 23. No release of the deposit shall be made unless the holder of the exploration permit fully complies with the provisions of these regulations.
- 24. The Minister may make such orders as he may deem necessary from time to time for the interpretation and effective administration of these regulations.

MANNER IN WHICH LEASES MAY BE TAKEN AND ESTABLISHMENT OF CROWN RESERVES

- (2) No concentration of leases out of an exploration permit shall be permitted to comprise more than acres and the length of the tract shall not exceed times its breadth.
- (3) Locations or concentrations of leases applied for may form a checkerboard pattern or shall be apart one from the other a distance of not less than one mile.
- (4) No location shall be permitted nearer than one-half mile of the border of an exploration permit unless:
 - (a) Crown reserves of not less than one mile in width have been established in Crown lands adjoining such borders; or
 - (b) The holders of adjoining exploration permits mutually agree with the consent of the Minister:
 - (i) to create a concentration of leases to comprise rights on both sides of the common boundary; or

- (ii) to permit the holder of an exploration permit to apply for a location or a concentration of leases adjoining the common boundary providing the holder of the other adjoining area under exploration permit undertakes to leave in his area under permit a Crown reserve of at least one mile in width adjoining the said location or concentration of leases.
- 26. In the case of a fractional township of not more than two miles in width, the Minister in his discretion may for the purposes of these regulations consider such fractional township as forming part of any adjoining township.
- 28. Crown reserves shall comprise:
 - - (b) the portions of a checkerboard pattern not permitted under lease;
 - (c) and such other areas as the Minister in his discretion may select.
- 29. When any question arises as to the Crown reserves to be established within an area under exploration permit, the Minister shall be the sole judge and there shall be no appeal from his decision.

EXPLANATORY NOTE: Sec. 25 (1) to Sec. 29 inclusive deal with the manner in which leases may be taken and Crown Reserves established and are therefore only applicable to provinces that have a policy of establishment of Crown Reserves.

APPENDIX 2

BRIEF ON INCOME TAX AS IT APPLIES TO THE OIL AND NATURAL GAS INDUSTRY

Submitted by Western Canada Petroleum Association

Canada brought an oil well into production in 1858, one year before the famous Drake well in Pennysylvania which inaugurated American oil development. Yet in the intervening ninety years U.S. has so outdistanced Canada that comparison is impossible; our total production from 1858 to 1948 was about 150 million barrels, which is less than six months' production from Texas. The reason for this disparity in development is to be found, partly at least, in the difference between the tax structures of the two countries.

It can be demonstrated that the recent discoveries in Alberta have stemmed directly from the tax incentive legislation passed by the Dominion Government in 1942 and 1943. The war urgencies induced the Government to pass amendments to the income tax law to encourage exploration and large-scale investment in potential oil lands.

During the period 1943 until the discovery of Leduc in February 1947 substantial expenditures were made in general geological surveys, acquisition of acreage via reservations or leases, detailed geological and/or seismic and/or other survey to outline features suitable for drilling and actual test drilling. All of this work is essential to permit development of new techniques, elimination of unfavourable areas and generally in laying the groundwork for future activities. Evaluation of properties as aforesaid may extend over a period of three or four years or more and is a prolific consumer of capital.

The discovery of oil in Leduc established the existence of substantial production in that area. In addition it established the important production possibilities of the Devonian formation which is known to underlie large portions of Alberta, Saskatchewan, and Manitoba. Greatly accelerated drilling activity ensued and this discovery followed by later ones at Woodbend, Redwater, Golden

Spike, Stettler, and with promising possibilities indicated elsewhere, has brought into the West an entirely new group of interests as well as stimulating the activities of those companies already operating.

Since February 1947 and until July 1949 there have been 885 wells drilled in Alberta and more than forty million acres taken out under lease and reservation. Accelerated drilling activity is indicated as follows:

1947 — 224 wells, 1948 — 356 wells, and first six months 1949 — 305 wells.

Risk Capital Requirements

The history of development in the oil and gas industry clearly indicates the necessity for the encouragement of risk capital. Tremendous amounts of capital are required to maintain an accelerated exploration programme and to finance the development of the oil reserves already discovered. In the early stages at least the development programme is not a generator of capital sufficient to support further exploration activities and a considerable period will elapse before the programme becomes self supporting — such period depending on many external factors such as building pipelines, development of markets, availability of capital resources, etc. In this connection Dr. Pogue, eminent oil economist of the Chase National Bank, recently estimated Alberta oil development capital requirements at one billion dollars.

Sources of Risk Capital

Within Canada — It is of particular concern at the moment that a relatively small proportion of the capital being employed in Canada's oil development is of Canadian origin. It is submitted that every effort should be made to encourage Canadian participation in the development of what is now recognised as a vast new oil empire having the tremendous potential of another Texas.

Outside Canada — Because of the enormous amount of capital required to explore and develop Canada's oil resources it is most necessary that every encouragement be given to outside capital, most of which is being provided from the United States. Although there are important differences between basic Canadian and U.S. Federal income tax legislation, in view of the close economic relationship between our two countries and the high degree of development of the oil industry in the United States, it is of value to consider the tax laws and regulations of that country. If the United States, which is the dominant producer of petroleum products, finds it necessary to provide special incentives to oil exploration and development, surely Canada with its infant industry requires not less favourable tax conditions.

One of the most important considerations in obtaining risk capital is a favourable tax climate which will give due recognition to the hazardous nature of the oil industry and will ensure reasonable taxation on earnings from successful operations. It is therefore apparent that before any one company or group is justified in undertaking an expensive and large scale exploration program it must be assured of recovering from an ultimate discovery all its expenditures and losses incurred in previous failures. There are numerous examples in Alberta today of companies that have each spent several million dollars during the last six years without discovering a barrel of oil. For this reason it is apparent that a sound and fair tax system is essential if risk capital is to be attracted to oil and gas exploration in Canada in the amounts required to do the job.

Conclusions

Oil and gas are natural resources under provincial jurisdiction. The province therefore has the first right to levy royalties and taxes, control the industry, and conserve the resources.

On the other hand the Dominion has the right to levy both direct and indirect taxes on the industry, as on other industries.

With these two separate jurisdictions in the taxation field it is imperative that their individual tax policies be coordinated so that conflict does not result and the industry is not subjected to an excessive overall tax burden which would hinder or restrict its economic development.

Before submitting the detail of the tax recommendations of the Western Canadian Petroleum Association, it is desired to direct the attention of the Mines' Ministers to the following:

- A. Development of the oil industry in Canada on the scale which now seems possible will bring substantial and far-reaching benefits to the individual provinces and their citizens.
- B. Such development will offset the present annual drain of \$200-\$300 millions on Canada's U.S. dollar resources.
- C. Encouragement of risk capital is essential to successful development and while recognizing the necessity of obtaining capital outside of Canada it is especially desirable that every encouragement be given Canadian capital. Canadians are entitled to tax legislation which permits them to participate in the development of their own resources on an equal basis with outside competitors.
- D. This is Canada's great era of expansion and development. In the oil industry this fact is clearly recognized by the most intelligent investment capital of the United States and it is vital for our Canadian governments to appreciate the extent of developments that have already taken place in our oil and gas industry and actively foster the much greater developments which are indicated for the future.

RECOMMENDATIONS

1. That an advisory council be established, representing Dominion and Provincial officials, and duly accredited representatives of the industry, to study the economy of the oil and natural gas industry, and the effects of taxation on it, and to make periodic recommendations to all governments concerned.

The terms of reference of this council would include:

- a. Continuous examination of the progress of exploration and the factors which act as a stimulant or deterrent to it.
- b. Study of comparable conditions in other countries, particularly the U.S.A., so as to ensure as attractive conditions in Canada and thereby attract foreign capital and at the same time encourage Canadian investment in the industry.
- c. Comparison of Dominion and Provincial taxation with a view to recommending specific reforms to eliminate clashing or unsynchronized applications.
- d. Comparison of taxes and other laws as between provinces, so as to ensure similar treatment of the industry in all parts of Canada.
- e. Analysis of particular grievances or hardships of members of the industry under the tax systems of Dominion or Provinces, with a view to recommending corrective reforms on behalf of the industry as a whole.
- f. Education of government officials dealing with the industry, legislators, and in final analysis, the public of Canada, on the basic economy of oil and gas exploration, and the need for special tax treatment.
- 2. That the depletion rate for producers of petroleum be established immediately at 33 1/3 per cent for all parts of Canada not 25 per cent in Eastern Canada, and that further study be given to the general question of adequate depletion and further representations made to the government in the near future.
- 3. That the deduction of the expenses of off-property exploration and unsuccessful drilling be put on a permanent basis, and not left on a year-to-year basis.

The 1949 Budget announced the Government's intention to continue this deduction for 1950, 1951, and 1952. This is a recognition of the industry's need to know the future tax conditions before laying out plans for extensive exploration. It is submitted that the Government's recognition of this need is ample justification for requesting that the deduction have no time limit. Clarification of the different categories of oil operators is also necessary, and the distinction between producers, refiners and marketers on the one hand, and exploration companies on the other, is needed.

4. That the cost of acquisition of land be deferred for tax purposes until it is surrendered or abandoned at which time it may be included as a deductible cost of unsuccessful off-property exploration.

This is a valuable right of the American operator. It is clearly as much a part of the cost of exploring as seismic survey expenses, drilling costs, and plugging abandoned wells.

It is not a capital expense, because no capital asset is acquired — the exploration license is given up, or the lease vacated.

5. That the right under s. 11 (1) (n) of the Income Tax Act to deduct taxes levied by provinces or municipalities on income derived from mining or logging operations be extended to cover (a) income from the production of petroleum and natural gas, and (b) provincial corporation taxes to the extent that they are, in fact, levied on such profits.

In 1946, as part of the Dominion proposal to the provinces to enter into taxation agreements, the Dominion offered, and enacted in the Income War Tax Act of that year, a provision for a deduction from income, by a corporation whose income is primarily obtained from mining or logging operations, of the taxes paid by it to the government of any province. This deduction was not dependent upon the provinces entering into a taxation agreement with the Dominion. It was a recognition by the Dominion of the primary jurisdiction of the province in the field of natural resources.

Following that 1946 enactment, various regulations were issued under the Dominion income tax law defining what was income derived from mining operations or logging operations, and finally what were the provincial taxes which were deemed to be levied on this type of income. In particular, a directive issued on April 26, 1948, by the Deputy Minister of Taxation stipulated that no deduction would be allowed under this provision for provincial or municipal taxes imposed generally on corporation income. The only taxes that were said to be within the contemplation of the provision were taxes "imposed specifically on the particular types of income mentioned", i.e. only specific taxes on the income of mining operators or loggers. It is believed that there is only one such specific type of tax in Canada, namely, the B.C. mining tax.

Moreover, the Dominion, by regulation, has said that "income from mining operations" does not include income from the production of petroleum or natural gas. By order-in-council P.C. 347, dated January 27, 1949, "mine" and "minerals" are defined as follows:

"'Mine' includes any work or undertaking in which mineral ore is extracted or produced, including a quarry; 'Minerals' includes gold, silver, rare and precious metals or stones, copper, iron, tin, lead, zinc, nickel, salt, saline deposits, alkali, coal, limestone, granite, slate, marble or other quarriable stone, clay, marl, gravel, sand, and volcanic ash, but does not include petroleum and natural gas."

To exclude petroleum and natural gas from this provision regarding the prior right of the provinces to tax income from mining operations is a direct challenge of the provinces' jurisdiction over these natural resources. Moreover, it does not make sense. If the province sees fit to charge the holder of oil or gas leases a rent based on net income as opposed to a gross royalty, that charge should be allowed as a deduction for Dominion income tax purposes.

Therefore it is recommended that a request be made to have this provision in the Dominion law amended and interpreted to include:

- (a) an allowance of provincial or municipal taxes levied on producers of petroleum or natural gas as a tax on mining income; and
- (b) an allowance of the general provincial corporation income tax as a deduction under this provision to the extent that it is levied on such mining income.
- 6. That operations be allowed to write off pre-production expenses in accordance with the income tax rulings, irrespective of how such expenses are written off on their books.

A recent ruling of the Department limits the write-off for Income Tax purpose to amount taken that year on the operator's internal books of account. This ruling seeks to deny the operator a specific right under the income tax law because of the Department's views of what is proper internal accounting practice for the operator. It is submitted that the Department should not attempt to enforce indirectly its personal views of proper internal accounting. The Securities Commissioners and the Courts are available to enforce the Blue Sky Laws.

7. That the right to deduct the expenses incurred directly or indirectly in unsuccessful exploration and drilling for oil and gas be given to all mining companies.

At the present time coal mines are adversely affected by the competition of oil and gas and should be allowed to diversify their interests and participate in the oil and gas exploration if they so desire. Likewise metal and strategic mineral mines should be allowed to participate in this new mineral development. Modern exploration technique is such that search for oil or gas is a natural accompaniment of the search for other minerals. It is felt that this reform will do much to increase Canadian capital participation in the oil and gas developments in this country.

APPENDIX A

DOMINION INCOME TAX AS IT APPLIES TO THE OIL AND NATURAL GAS INDUSTRY

Rate

30 per cent on corporations and net royalty syndicates (plus 5 per cent levied by Dominion on behalf of "agreeing" provinces e.g. Alberta — when all provinces enter into agreements with the Dominion, the Dominion rate will presumably be raised to 35 per cent.)

Income

The determination of income for tax purposes is, generally speaking and apart from the special deductions noted below, the same for the oil and gas industry as for other businesses. It is profit for the year, determined in accordance with generally accepted accounting principles.

Like other businesses, the oil industry can average profits and losses over a 7-year period (Budget announcement March 22, 1949) i.e. losses may be carried forward six years or back one year.

Depletion

33½ per cent of net income for operators of oil wells, (except in Ontario and Eastern provinces, where it is 25 per cent but probably will be increased to 33½ per cent in the near future.)

25 per cent of net income for operators of gas wells.

This allowance is given each year, as long as the company is producing, and is not limited to the cost of the property on which the well is situated. (In addition a depletion allowance of 20 per cent is allowed to the shareholders of incorporated companies on the dividends received from producing oil or gas companies.)

Special Deductions

1. Amortization of pre-production development expenses of a successful well, including

geological and geophysical work undertaken in connection with that well, and casing-in the well—but not including the cost of the property, or the surface buildings or equipment — can be written off against income from production as fast as the operator desires.

Any unused portion of the write-off (due to there being insufficient profits in that particular year) may be carried forward to a subsequent year.

- 2. Amortization of unproductive exploration, development and drilling expenses on property adjacent to property of the taxpayer where there are producing wells:
 - (a) by refining, marketing or producing companies must be taken as a deduction from income in the year when incurred;
 - (b) by exploration companies, syndicates, and partnerships can be deducted from income of year, or carried forward to be deducted from income of future years.
- 3. Depreciation of plant, buildings and surface equipment at the wells 25 per cent per year. Under proposed new depreciation regulations, this percentage may be increased but will be applied to written-down values).
- 4. Deduction from income of annual wildcatting expenses limited to oil-producing, refining, or marketing companies, oil-exploration companies, syndicates, partnerships, and gas-exploration companies, etc.

Since January 1, 1943, the costs of off-property exploration work, drilling, etc., have been allowed as a deduction from income (or a deduction from taxes, until the end of 1947).

By the 1949 Budget (announced on March 22, 1949, but not yet passed by Parliament) this concession was extended to the end of 1952. In the case of a producing, refining or marketing oil or gas company, the deduction of wildcatting expenses is limited to wells which prove unproductive and are abandoned within six months. If such a company has no income, the deduction results in no immediate tax concession, but serves to increase the annual loss which may be carried forward six years. If an exploration company carries on this work, it is not limited to unproductive drilling, and can carry forward the deduction to the year when it has income. Likewise, in the case of a gas exploration company, syndicate, or partnership.

5. Deduction of the costs of drilling deep-test oil wells, or tests of significant stratigraphic traps, which proved unproductive – limited to oil companies and exploration companies, syndicates or partnerships — a combined deduction from income and a deduction from tax which gives the effect of a 50 per cent subsidy by the Government in the case of oil companies entitled to depletion, and 60 per cent in the case of refining or marketing companies without depletion.

This has been extended to cover deep-test expenditures up to the end of 1950.

Note that geophysical and geological expenditures are not included in the deductible costs of deep- or stratigraphic-test wells qualifying for this deduction but can qualify as exploration expenses deductible in the year when incurred. Costs of roads, water development and other preliminary work attendant on the actual drilling of the well are included.

The deep or stratigraphic test may be carried on by several oil companies, syndicates or partnerships jointly, and the deduction apportioned among them.

Note that while the deduction from income may be useful in a year of loss, the tax credit isn't — since it doesn't add to the loss which can be carried forward six years.

Unrecoverable Costs - i.e. Costs which must be capitalized, but not amortized:

- 1. Exploration license fees, rentals, etc. paid to the Province or other holder of mineral rights, for the right to explore and lease lands.
 - 2. Premiums paid to the Province or other holder of the mineral rights for leases.

3. Purchase price of surface rights.

These are considered costs of the capital asset, viz. oil or gas in the ground, and the depletion deduction (if the ground proves productive) is considered adequate compensation to the operator for such directly-incurred and measurable capital costs.

COMMITTEE 4 — METAL MINING AND MISCELLANEOUS TOPICS

Committee:

J. C. Houston, Chairman	M. G. Goudge	J. P. Messervey
R. R. Basserman	J. C. Houston	I. N. McKinnon
W. J. Bichan	C. K. Howse	W. S. Row
Honourable J. H. Brockelbank	H. C. Hughes	H. Sargent
R. A. Brown	W. G. Jewitt	D. M. Stephens
A. E. K. Bunnell	A. E. Jukes	Roger Taschereau
C. S. Clements	E. Larochelle	

E. L. Longmore

1. Mining Taxes and Royalties — Income War Tax Act.

The Committee has nothing to report.

. Workmen's Compensation.

B. T. Denis

The Committee submits two briefs one from the Ontario Mining Association (Appendix 1), the other from the Western Quebec Mining Association (Appendix 2), and commends them to the Ministers for consideration.

3. Mining Townsites.

The Committee submits two briefs one from the Ontario Mining Association (Appendix 3), the other from the Western Quebec Mining Association (Appendix 4), and recommends:

- (a) That the Sub Committee be made a Standing Committee.
- (b) That in accord with the decision of the Fifth Annual Conference in Jasper it be solely a Fact Finding Committee.

4. Securities Regulations.

The Committee is pleased to learn that the Provincial Security Commissioners are meeting in October.

5. Emergency Gold Mining Assistance Act,

The Committee submits for the information of the Ministers two briefs, one by the Ontario Mining Association (Appendix 5), the other by the Western Quebec Mining Association (Appendix 6).

6. Radio Active Minerals and Exploitation.

The Committee has nothing to report.

7. Base Metal Mining.

The Committee has nothing to report.

8. Highgrading.

The Committee submits two briefs, one from the Ontario Mining Association (Appendix 7), the other from the Western Quebec Mining Association (Appendix 8), and recommends:

That steps be taken by the Ministers to have the protection of mines from the stealing of gold taken over by the Royal Canadian Mounted Police.

9. Control of Tuberculosis.

The Committee submits a brief of the Ontario Mining Association (Appendix 9), and concurs in the recommendation therein, namely:

"That the Provincial Governments be urged to give this work their encouragement and support."

APPENDIX I

REPRESENTATION OF ONTARIO MINING ASSOCIATION WORKMEN'S COMPENSATION

It is not our intention to deal in this presentation with compensation coverage or benefits under the various Provincial Acts in existence today. There is probably some reason for uniformity in this regard insofar as Canada is concerned, but the varying degrees of industrialization in the various jurisdictions might be an argument against this. Also it may be questioned as to whether or not the greatest coverage and the highest benefits are truly a mark of the best legislation. Costs of compensation are not a charge against profits but are a direct part of the cost of production. In export trade especially compensation benefits out of line with need may well serve as a boomerang to harm one's industrial efforts and to diminish the number of jobs we can create.

There are however certain principles involved that are or should be uniform in their importance and application wherever compulsory and collective liability of employers for compensation is in existence.

Compensation for accidents suffered by an employee in industry is nothing new. In the old days it very often involved court action by the employee in which he had to prove employer's liability by reason of dangerous conditions prevailing. As time went on employers individually carried insurance against such claims such that insurance companies engaged specialists to combat the claims of the employees. Often if an employee won, his legal costs ate up at least a good part of his winnings. The employer too had his own legal costs plus insurance premiums.

With the advent of collective liability of employers for compensation in Ontario in 1915 came certain benefits to all. As to the employee:

- (1) A fixed scale of compensation was set for all types and degrees of disability.
- (2) Compensation was automatically paid without requirement of court or legal expense.
- (3) Aggravation of old complaints or disabilities was no longer a factor, with few exceptions.
- (4) Contributory negligence did not influence the compensation.
- (5) Many congenital conditions, hernia, etc., were interpreted as industrial accidents.
- (6) Industrial diseases were compensable as accidents.
- (7) Tuberculosis was recognized as an industrial disease when complicated by silicosis.
- The rights of dependents to compensation payments on the workman's behalf were recognized.
- (9) Compensation payments are not subject to income tax.
- (10) The workman contributes nothing to the cost of compensation, the total cost being a charge against industry.

As to the employer:

Collective liability in comparative groups takes care of the surges of accident costs, provided all in the group are equally diligent in the prevention of accidents.

- (2) Collective liability in groups enables the setting of a rate of compensation for the year such that employers know what their costs will be and can govern their business accordingly.
- (3) The employer too is saved legal and court fees in fighting claims.
- (4) Employers through application of collective liability are encouraged to get together in groups to improve accident prevention methods.

It can be readily seen that legislation of this kind stands apart from all other legislation carrying benefits to the people in that the total cost of compensation benefits come from industry direct and not from the public purse. Since no public funds are involved the Government and its administrative board stands in the position of a trustee between industry and its employees.

Since in the adoption of collective liability by employers for all accidents the employers gave up all rights to protect themselves in the courts against unfounded claims for damages, the basic principles on which government controlled compensation was imposed, i.e.

- (a) Compensation to be paid for the result of industrial accidents only and not to be used for social benefits such as old age pensions, general hospitalization plans, etc.
- (b) No retroactivation of liability or expense, should be religiously adhered to.

We cannot be too strong in our support of the views that changes in benefits provided for in the Act should not at any time be brought about except following a careful judicial review of all the pertinent facts. It is unthinkable that changes in this type of legislation should be influenced by political expediency.

The Ontario Act, which was accepted as a model of compensation legislation in many parts of the world, was developed in 1915 as a result of the work of a Judicial Commissioner — the Chief Justice of Ontario, the Hon. Mr. Justice Meredith.

Only once since then, in 1932, was the legislation made the subject of a further judicial review, by again the Chief Justice of Ontario, the Hon. Mr. Justice Middleton.

We are confirmed in the view that changes in compensation legislation as to coverage and benefits should only be made after all the facts have been ascertained by a judicial commissioner appointed for the purpose. His responsibility would be to hear both employers and employees alike, weigh the facts and make recommendation thereon. In other words, the guarding of the principles is a government responsibility but the fact finding process and development of recommendation should be kept as far away from political influence as possible.

We therefore urge that periodic judicial reviews of this legislation and its administration be provided for at which reviews employees and employers alike would be invited to bring forward suggestions for amendments, supported by factual information. Some Provinces have already incorporated some similar provision in their legislation with varying terms as to period and make-up of enquiry personnel. In view of the nature of the legislation involved, this Association supports the view that such enquiries can best be conducted by and reports drawn by a Judicial Commissioner and following the practice already adopted in Ontario in 1915 and 1932.

APPENDIX 2

REPRESENTATION OF WESTERN QUEBEC MINING ASSOCIATION WORKMEN'S COMPENSATION

Since industry supplies in full monies paid for compensation benefits, it should be accorded the privilege of consultation before changes in compensation legislation as to coverage benefits are made. In this respect it might be opportune to recall that the Provincial Workmen's Compensation Board occupy the position of trustees between employer and employee and that funds appropriate for compensation requirements be in no instance devoted to other forms of social benefit.

APPENDIX 3

Representation of Ontario Mining Association MINING TOWNSITES

The Ontario mining industry has few comments to make on this subject except to commend the Conference for its decision last year to continue the committee as an informative committee only.

The setting up of mining townsites is subject to many special conditions, varying according to a multiplicity of governing factors. The type of mines to be served — small or large ore bodies with short or long indicated life ahead of them is of major consideration. If requirements for industry support are heavy in the first instance, many mines that start out in a small way even though they might eventually develop into larger operations, would never get a chance to get started.

If care is taken in the first instance to select suitable sites, with a minimum of control other than basic planning to follow, the development of the budding municipality and of the area will be best aided.

APPENDIX 4

Representation of Western Quebec Mining Association MINING TOWNSITES

No comments except that we reiterate our statement of last year that the application of the Quebec Act respecting the municipal organization of mining villages has worked satisfactorily. We also beg permission to commend the Mines Ministers' Committee on their decision that the Standing Committee on Mining Townsites should be continued but solely as a fact finding body.

APPENDIX 5

Representation of Ontario Mining Association

MINING TAXES AND ROYALTIES

Taxes like death seem to be always with us and inevitable, and our intention in putting forth suggestions is to deal with matters of tax policy as applicable to the mining industry.

Certain features of mining are of special interest in giving consideration to a proper taxing programme.

The cost of finding and developing new mines is expensive.

Ontario's record over 27 years shows:

An average of 10,000 claims recorded per year.

An average of 6,350 claims cancelled per year.

over 40 years:

4,956 metal mining companies or syndicates incorporated or licensed.

In the same 40 year period, 27 gold mines, 17 silver mines, and four nickel mines attained a position where they could be considered economically successful operations — 0.968 per cent of the total metal mining companies incorporated.

One other feature is evident from a study of the Provincial records:

Up to the end of 1946:

67 gold mines paid mines profits taxes for an average of 8.42 years.

45 silver mines paid mines profits taxes for an average of 6.2 years.

5 nickel mines paid mines profits taxes for an average of 15.6 years.

11 miscellaneous mining companies paid mines profits taxes for an average of 2.73 years.

On the average, therefore, the period of profitable operation of a metal mine is short.

Risk and expense of finding new mines, short life of operation, due to limited extent of ore bodies and inevitable complete depletion, these are conditions peculiar to the mining industry.

In addition mining is subject to all the usual uncertainties of any business:

Management.

Markets — metal prices and substitution.

Labour supply.

Recently gold mining has had fastened on to it a residual of war economy — government controls.

Present Position

It is perhaps unnecessary to mention in a gathering of this sort that the mining industry occupies a position of general importance in the economic field of any country. It pioneers, creates new wealth, provides readily exportable products and so adds to our foreign exchange and raises our standard of living, and provides, in the case of gold mining, a buffer in the event of depression.

Some fairly recent figures, the latest available from Government sources, are interesting with respect to the volume distribution to the collection agencies.

Gold Mines.

Dominion income taxes have decreased from \$9.6 million in 1943

to \$3 million in 1947,

Provincial mines profits taxes have decreased from \$940,000 in 1943

to \$370,000 in 1946,

but increased to \$823,000 in 1947.

In the case of Dominion taxes, the decrease results from a combination of lowering rate of taxation plus lower profits.

In the case of the Provincial taxes, the decrease to 1946 is entirely due to falling profits; the increase in 1947 almost entirely due to an increase in rate of taxation.

Certain ameliorating features apply to the increased Provincial tax paid in 1947-

The portion paid to the municipalities increased from \$101,000 in 1946 to \$174,000 in 1947.

Commencing in 1947, taxes paid to this Province (royalties) became deductible from taxable income for Dominion tax purposes so that if we can assume the whole amount of \$823,000 is so deductible, a saving of approximately \$250,000 would accrue to the mines on Dominion taxation. Even with this, however, and allowing for the small improvement in gold mining profits during the year, the overall increase in taxation was substantial.

In 1948 Assistance being paid by the Dominion to the gold mines will mean further large increases in the tax collections both of the Dominion and the Provinces, since both these tax the Assistance when it is interpreted into profits.

Gold mining profits in Ontario which had decreased from \$14.1 million in 1946 to \$12.8 million in 1947, showed an increase to \$14.5 million in 1948. It should be emphasized however that during 1948 the gold mines of the Province estimated "Assistance" to be received at \$4.8 million. This should be compared with the apparent increase of \$1.7 million in gold mining profits in the year.

Without regard to tax changes that would result from lower profits in the event no "Assistance" were received, the situation works out as follows:

\$1.7 million was effective to take care of increased costs of those gold mines that had any profits at all.

\$2.25 million went to mines that had no profit.

\$0.85 million went back to the Governments in the form of taxes, \$0.62 million to the Dominion, \$0.25 million to the Province.

In other words of the \$2.55 million that went to that part of the industry that was in a position to make profits in spite of increased costs, one-third was taken back by the Governments.

Nickel-Copper.

The taxation story here is somewhat similar to that existing in the gold mines, except that the profit position has been unhampered in recent years by control of prices, which have fluctuated in accordance with world supply and demand influence, and no "Assistance" or subsidy is involved.

Dominion income taxes decreased from \$13. million in 1943, to \$8.7 million in 1946,

Provincial mines profits taxes decreased from \$1.1 million in 1943, to \$0.6 million in 1946,

but increased to \$1.7 million in 1947.

The Future.

The mining industry of this country advanced more rapidly under the 50-50 depletion allowance provision combined with low income or profits tax than during any other period of its existence.

High taxation rates on earnings and double taxation on these earnings, in the hands of the corporation and in the hands of the shareholders on dividends are a direct deterrent to the expenditure of large sums on property and development, much of which must be lost.

High taxation additionally necessitates the mining of higher grades of ore and the wasting of large tonnages of lower grades which are immediately made permanently irrecoverable. When it is realized that higher costs of materials and labour works in exactly the same manner and that on the other hand the expanding demand for greater quantities of our base metals in particular at the moment forces the utilization of lower grades insofar as possible, it can be seen that the ultimate influence can be particularly serious, not only to our future development of new mines but also to the maintenance of our existing operations.

Provincial Governments can hardly be expected of themselves to influence Dominion policy on taxation, but individual Members who are informed of the situation may, and the situation demands the aid of all.

Our plea is that in the interest of opening up of our country, production of new wealth, provision of employment, provision of business in large measure for subsidiary industries, railways and power development, and maintenance of an industry of great economic importance, the rate of taxation on mining in all its applications be kept at a minimum.

It is our serious and honest opinion that were the mining industry released from all taxation, Governments who would immediately have greater wealth in the hands of other industry to tax, would not suffer since the growth of our present industry would be enormous. Canada would be flooded with outside capital required for development and our outlying communities and areas would become centres of great activity.

As against this exploration is at present at a minimum, diamond drilling companies have most of their machines idle and if it were not for the popular urge for uranium and the new Western oil development, our recording offices could take a holiday.

APPENDIX 6

Representation of Western Quebec Mining Association GOLD MINING

Our gold mines produced gold in greater amount in 1948 than in 1947, the output for the two years being, respectively, 600,147 ounces valued at \$21,001,541., and 468,316 ounces valued at \$16,384,051.

Average total cost of mining operations per ounce of gold produced, excluding revenue taxes, increased from \$34.18 in 1947 to \$35.46 in 1948. Hence, a deficit at the mines of \$0.46 per ounce of gold produced in 1948, as compared to a profit of \$0.82 in 1947.

Assistance received under the Emergency Gold Mining Assistance Act amounted to \$4.38 per ounce, thus changing the deficit into a profit of \$3.92 per ounce produced.

After giving consideration to non-operating revenues, cost of outside explorations as well as to revenue taxes, both Provincial and Federal, the gold mining industry of Quebec was left at the end of 1948 with an earned surplus of \$3.39 per ounce as compared to \$0.45 in 1947.

Evidently, the relief granted under the Emergency Gold Mining Act was timely. The situation might have been eased. It has not been remedied. In fact, we are far from the results obtained in 1939, when, with a production of 664,870 ounces valued at \$36.37 per ounce or \$24,182,735., the gold mining industry of Quebec finished its year with an earned surplus of \$10.37 per gold ounce produced.

Total cost of mining operations per ounce of gold produced was then \$24.65 as compared to \$35.46 in 1948, i.e. an increase of 44 per cent during the period under consideration.

In concluding our remarks on this chapter, we are very much worried about the future of the gold mining industry in Quebec, if gold is left at its current low price.

APPENDIX 7

Representation of Ontario Mining Association

CONTROL OF GOLD STEALING

During the early years of the war, the Foreign Exchange authorities of the Dominion Government who had access to information from disposal areas in the United States, estimated that the annual loss of gold in Ontario mines to the "high grader" amounted to \$1 million.

We make no claim that this amount then or now represents the loss to our mines and in part to our Governments who would be in a position to tax the value of same were it permitted to normally go into our mine profits.

That the amount is substantial however is evidenced by one case of a "high grader" apprehended just a few years ago by our Provincial Police. He had in his possession over \$10,000 worth of gold buttons and a sum of money, some \$4,000, to purchase more. His apprehension led to the arrest by the R.C.M.P. of a pilot transporting gold from a Montreal airport to European destinations. The pilot was found to have a bank account in New York under a fictitious name, in which there was over \$50,000 U.S. funds, partly his profits in the traffic. He was only one of the ring. The quantity handled by that group was apparently substantial, since if for example his portion of the profits amounted to \$2. per ounce, \$875,000 worth of gold would have been involved.

The mines in Ontario have received excellent co-operation from our Provincial Police, but feel that they are severely handicapped in the proper fulfillment of their job with respect to gold stealing.

Practically all the gold stolen is transported out of the Province of origin for disposal; as soon as it crosses the border it comes under another police jurisdiction, such that follow-up of the criminal is involved.

If the gold is transported into the U.S., the R.C.M.P. is concerned as an export matter.

If it travels East into Quebec, the Provincial Police of that Province become involved; if it travels West to Manitoba, the Provincial authorities, here the R.C.M.P. who act for them, are concerned.

In our experience in Ontario many of the personnel involved in the business are also concerned with the "white slave" or the "dope" traffic, already Federal offences under jurisdiction of the R.C.M.P.

The Dominion Government is seriously interested in the disposal of gold, it is to them currency immediately exchangeable for any currency or goods in the world, an important function in this day and age of controls.

Our Association again urges, first, that insofar as Ontario is concerned the R.C.M.P. be invited to take over the policing of this business and would respectfully suggest to other Provinces not already engaging the R.C.M.P. for Provincial police work, that uniformity of action with respect to this gold stealing business would pay dividends to the gold producing Provinces and to the Dominion.

APPENDIX 8

Representation of Western Quebec Mining Association PREVENTION OF THEFT OF GOLD IN MINES

"Highgrading", the term commonly used for the theft of gold from producers, exists wherever there are gold mines.

Alarmed by the gravity of the situation and the extent of the traffic (which for instance in 1947 involved the theft of \$41,000. in gold bullion from the Canadian National Express Company at Val d'Or), the Western Quebec Mining Association, in 1943, appointed an Anti-Highgrading Committee to organize for the detection and suppression of the theft of gold from our mines. This committee has obtained and paid for the services and expenses of two special investigators.

Although the Committee and its investigators have received friendly co-operation from law enforcement agencies, such as the Quebec Provincial Police and the Royal Canadian Mounted Police, we are in full accord with the remarks, made by the Ontario Mining Association, regarding the necessity of uniformity of action with respect to the repression of gold stealing in Mines, and we believe that the work of prevention of the theft of gold, and the apprehension of offenders should be carried out by the Royal Canadian Mounted Police.

APPENDIX 9

Representation of Ontario Mining Association CONTROL OF TUBERCULOSIS

Much has been said about silicosis, its dangers, prevention and cure, but the fact remains that if tuberculosis could be eradicated, silicosis which through herculean efforts on the part of the whole mining industry in Canada is, we believe, being brought under control, would not be a major factor in disabling our workmen, and would not to any degree be a cause of death.

From the point of view of the general health of the community at large, every effort should be exerted to eradicate tuberculosis. From the point of view of our miners any improvement in the situation in re tuberculosis is of added interest.

Much work on the development of serums and injections (B.C.G.) to build up immunity to the tuberculin bacilli, has been done but more is needed. We urge the Governments to give this work their encouragement and support.

COMMITTEE 5 — GROUND WATER TABLE AND WATER SUPPLY

Committee:

M. E. Hurst, Chairman

A. E. K. Bunnell

A. E. Cameron

W. H. Hastings

H. Sargent

T. B. Williams

C. T. R. Wilson

W. J. Dick

I. N. McKinnon

M. G. Goudge

J. S. Richards

Four provinces have a Well Drillers' Act and all of these require filing of information obtained by drilling of water wells. Only two, however, have penalties for failure to file this information and only these two receive any real co-operation from the drillers.

Collection of drilling records and water information is fundamental to studies on ground water problems and it is obvious to the committee that all water well drill operators should be licensed and required to supply the essential information with a penalty for non-compliance.

The data thus accumulated will form a basis for scientific approach to the ground water supply problems of each province.

In order to provide this information it will be necessary for each province to make the necessary enactments.

REPORT OF PROVINCIAL MINISTERS OF MINES

The Provincial Ministers of Mines convened in the Executive Council Chamber, Parliament Buildings, at 10 a.m., September 10, 1949 to consider the recommendations, resolutions, and reports of the Committees. The following were present:

Honourable R. J. Gill, Chairman
Honourable R. C. MacDonald
Honourable J. H. Brockelbank
Honourable C. D. French
Honourable W. S. Gemmell
Mr. D. M. Stephens, who acted on behalf of the Honourable J. S. McDiarmid

Others present in an advisory capacity were:

Mr. C. S. Clements, Secretary 'Mr. J. P. Messervey
Dr. B. T. Denis Mr. H. C. Rickaby
Dr. R. D. Howland Dr. H. Sargent

The findings of the Committee of Ministers of Mines, as presented to the final session of the Sixth Annual Conference by the Honourable R. J. Gill, are as follows:

1. APPROVALS OF COMMITTEE SUBMISSIONS

COMMITTEE 1

The Ministers of Mines approved:

- 1. That the work of the Dominion Topographical Survey is appreciated and it is desired that the aggressive programme of mapping be continued.
- 2. That a "form book" of geological symbols, patterns, colours, and map scales be issued by the Geological Survey of Canada.

- 3. That roads into mining areas open up intervening country to more intensive prospecting, to lumbering, tourist traffic, and land settlement; that they extend the frontiers beyond their destination for exploration and development; that improved roads into existing mining areas serve to develop these areas for industry and settlement apart from those directly concerned with mining; and that such roads are usually such as to minimize duplication of existing means of transportation. In the light of all these, and having regard to the national importance of minerals and the mineral industry, it is urged that every effort be made by the Governments to expedite the building of new roads into new mining areas and to improve those to older established fields; and that upon request by any Province the Federal Government assist by contributing a substantial proportion of the cost. Under the program in effect prior to World War II the Dominion contributed two-thirds of the cost of such projects. Substantial assistance from the Government should be provided for maintenance including snow clearance.
- It is urged that the Federal Government consider the provision of airstrips in isolated communities.
- 4. That the Provincial Governments in co-operation with industry work out the most effective and equitable means of providing information from airborne magnetometer surveys as well as all available prospecting aids.

COMMITTEE 2

The Ministers of Mines approved:

- 1. That the report of the Standing Committee on Coal be approved.
- 2. That a depletion allowance of 20 per cent should be allowed on dividends to share-holders of coal companies.
- 3. That the Dominion Government establish, without delay, a testing, approval, and certification authority for Canadian built equipment for use in Canadian coal mines.
- 4. That the Dominion Coal Board is commended for its initiative in calling a conference on research in the coal industry.
- 5. That further revisions of Provincial Coal Mines Regulations Acts be deferred until the L.L.O. model is available.
- 6. That a Standing Committee on Coal, having one member from each Province be set up and, as part of its duty, collaborate with the Dominion Coal Board. Dr. R. D. Howalnd, Vice-President. Nova Scotia Research Foundation, Halifax, Nova Scotia will be chairman of this Committee.

COMMITTEE 3

The Ministers of Mines approved:

- 1. That the Ministers are sympathetic to Appendix 2 of the report of the Inter-Provincial Committee on Petroleum and Natural Gas and consider it of sufficient importance to request Federal officials to give it their consideration.
- 2. That the Federal Government study the matter of import and export of oil with a view of making reciprocal trade arrangements with the United States in respect to the marketing of oil in the two countries.
 - 3. That there should be a reduction in freight rates on Canadian heavy oils.
- 4. That the Inter-Provincial Committee on Petroleum and Natural Gas should be maintained throughout the year 1950.

The following will be the government representatives on the Committee:

Mr. I. N. McKinnon, Alberta, Chairman (pro tempore)

Mr. W. J. Dick, Secretary Mr. A. R. Crozier, Ontario

Mr. M. G. Goudge, Nova Scotia

Dr. I. W. Jones, Quebec

Mr. J. S. Richards, Manitoba

Mr. J. K. Swanson, Saskatchewan

Dr. T. B. Williams, British Columbia

Dr. W. J. Wright, New Brunswick

The names of delegates from industry will be submitted to the Honourable N. E. Tanner.

COMMITTEE 4

The Ministers of Mines approved:

- 1. That the Mining Townsites Committee be a Fact Finding Standing Committee.
- 2. That the Provincial Security Commissioners will meet in October, 1949.
- 3. That two briefs, one from the Ontario Mining Association, the other from the Western Quebec Mining Association concerning mining taxes and royalties were considered but no recommendations were given.
- 4. That the protection of mines from the stealing of gold be taken over by the Royal Canadian Mounted Police:
- 5. That the Governments should give increased encouragement and support to the control of tuberculosis.

COMMITTEE 5

The Ministers of Mines approved:

That collection of drilling records and water information is fundamental to studies on ground water problems and it is obvious that all water-well drill operators should be licensed and required to supply the essential information with a penalty for non-compliance. It is considered necessary that each province make the necessary enactments.

2. COMMITTEE OF PROVINCIAL MINISTERS OF MINES

It was provided that a committee of Ministers, headed by the Honourable R. J. Gill, will confer with Federal officials in Ottawa concerning those matters discussed and being under Federal authority.

3. SEVENTH ANNUAL CONFERENCE

The invitation of the Honourable R. C. MacDonald to hold the 1950 Conference in British Columbia was accepted with pleasure, the Honourable R. C. MacDonald to be Chairman of the Seventh Annual Conference.

4. ACKNOWLEDGMENTS

It was moved by the Honourable N. E. Tanner, seconded by the Honourable E. Russell, and carried unanimously that the Secretary forward letters of appreciation and gratitude to the following:

His Honour the Lieutenant Governor and Mrs. MacLaren

Mr. Gerald Cherry and Staff, Lord Beaverbrook Hotel

New Brunswick Coal Producers' Association

New Brunswick Oilfields Limited

Shell Exploration New Brunswick Limited

for the part they took in making the Conference a success.

5. EXPRESSION OF CONDOLENCE

It was moved by the Honourable N. E. Tanner, seconded by the Honourable R. C. MacDonald, and carried unanimously that the Secretary express to Mr. A. O. Dufresne the deep sympathy of the Conference on the occasion of the sudden death of his son-in-law, Captain Pierre Laurin.

6. VOTE OF THANKS

An expression of thanks to the Honourable R. J. Gill and his staff was moved by the Honourable J. H. Brockelbank, seconded by the Honourable C. D. French and carried unanimously.

Representatives of industry expressed thanks to the Honourable R. J. Gill and his staff, and to the Ministers generally for such an interesting and successful conference.

Speeches Delivered at Plenary Sessions

--AND--

Report of Standing Committee on Mining Townsites



GROUND WATER TABLE AND WATER SUPPLY

G. S. HUME

Acting Director, Mines, Forests, and Scientific Services Department of Mines and Resources, Ottawa

Mr. Chairman, Honourable Ministers, and Gentlemen:

I am very glad of the opportunity to make a few remarks on the importance of groundwater, because, while we often take groundwater for granted, as it is one of the things of which we have a great abundance in our mineral resources, it is also one of the things that very directly affects the lives and health of each of us.

The work that has been done on groundwater by the Provinces and by the Dominion Government has been of a rather desultory nature. We have in times of need done some work, but we really have had no very consistent plan, either in the Provinces or in the Dominion whereby we have persistently and consistently carried out a program. In my own opinion, the time has now arrived when we should do continuous work under a definite policy.

Perhaps I might be allowed to make just a few remarks as to what we have considered doing in the Geological Survey at Ottawa. For many years, we have had a Borings and Groundwater section in the Geological Survey, and at times we have made a determined effort to collect groundwater data. Perhaps our greatest effort was made in 1935 during the period of the drought in Western Canada. At that time we sent out a very considerable number of parties and made an extensive survey of conditions in Southern Saskatchewan extending into Western Alberta. Certain large areas in the Central Plains extending from Edmonton east to Battleford in Saskatchewan were also covered. The data for thousands of wells was collected from the farmers and much of this information has been published. There is still some of it unpublished, but the results are being made available as quickly as possible with our limited staff.

In times of good water supply, that is, when the rainfall is adequate, the need on the Western Plains is not so apparent, but again when drought comes we find it very necessary to help not only the farmers, but also cities and towns to obtain a water supply.

In the United States the Geological Survey has for many years done a great deal of groundwater work. Most of their staff is now working in areas east of the Mississippi where the population is the greatest. The relation of groundwater to population has become a major problem in that country and in places in this country it is also becoming a major problem.

We made an investigation of the courses open in the universities to train people to do ground-water work. The best basis for training is, I think, a geological course, but we found in consultation with the United States water people that there was really no adequate course given in the United States whereby a man can be trained. The people in the government there told us that they trained most of their own men themselves after these had taken the fundamental university courses which would give them the basic material which they needed. With this in mind we are making provision to employ on the staff of the Geological Survey in Ottawa, in addition to some staff that we now have, ten new men who will be trained properly in Pleistocene geology. These will be put into the field under the direction of men who are competent to do this type of work and who will direct their training. We will use these ten men as the nucleus for a staff which can adequately attack this groundwater problem.

I believe that certain of the Provinces also have this groundwater problem in mind and are also adding to their staffs people who can do this type of work.

Any further remarks I have to make on the groundwater problem can perhaps be left to a later time but I think each one of us realizes that we must consider problems of conservation, particularly forest conservation, in reference to our groundwater supply. Where we are getting forest denudation the ground becomes subject to erosion and consequently there is a very high run off with very

destructive results and the water hasn't a chance to seep into the ground and be stored. The fast run-off, as we are well aware, constitutes a major problem of control, and so these things become all related to our ground water supply. Certain of our cities and towns are finding that wells that they had and which were adequate at one time, now are drying up because of the increased population and the added use and call on the water resources. Water tables are sinking and consequently new water supplies are being sought.

This problem of groundwater and what we can do about it is a very broad one but it is something for which a solution can be found by the Provinces and the Dominion working in a co-operative effort. I believe that, if action is taken in time and that if an adequate trained staff is built up to deal with the situation, the results will repay all efforts in a return of handsome dividends to our people as a whole.

REPORT OF STANDING COMMITTEE ON MINING TOWNSITES

A. E. K. BUNNELL

Consultant, Department of Planning and Development

LETTER OF TRANSMITTAL

September 2, 1949.

Mr. C. S. Clements
Secretary
6th Annual Conference of the Provincial Ministers of Mines
Forestry and Geology Building
Fredericton, New Brunswick.

Dear Mr. Clements:

I have the honour to present herewith a Report from the Continuing Committee on Mining Townsites, appointed at the 1946 Conference in Winnipeg.

An interim Report of the Committee was presented at the 1947 Conference at Keltic Lodge, Cape Breton National Park, Nova Scotia and is recorded in the official proceedings of that Conference as appendix IV.

It was decided at that Conference that the Committee should continue its work for another year.

Resulting from certain observations made at that time, I sent out two statements each in the form of a questionnaire in which certain factual information and opinions were sought. Included therewith was a memorandum from Mr. D. M. Stephens in regard to the establishment, administration etc. of the Snow Lake Townsite in Manitoba.

These statements and the memorandum are recorded in the proceedings of the 1948 Conference.

Unfortunately, as reported in a letter of the 14th August 1948 to the Honourable N. E. Tanner, Chairman of the Conference, and as recorded in the proceedings the replies received at that date were not in sufficient number to warrant summarizing and I was subsequently able to do no more than make a verbal summary of the answers received.

They are, however, in my judgment of sufficient interest to be recorded in the proceedings of this Conference and they are sent to you with this purpose in mind, as Schedules A and B attached hereto.

During the year, to the best of my knowledge, there has been no new legislation of any moment affecting mining townsites however, examination of the proposed programme for this Conference indicates it is desired that consideration be given to the success of the Snow Lake project in Manitoba, based on Mr. D. M. Stephens' aforementioned memorandum.

A copy of this memorandum is accordingly attached hereto as Schedule C.

Also attached hereto as Schedule D is a memorandum from Mr. J. P. Messervey, Deputy Minister, Nova Scotia Department of Mines in respect of the questions which should be considered as a supplement to the 1947 Report.

The Committee would appreciate the views of this Conference as to whether or not there is any further work which it should do.

Yours sincerely,

REPORT

SCHEDULE A

Questions and answers in respect of Co-ordinator's Statement No. 1 of July 27, 1948

QUESTION 1

ACQUISITION OF MINERAL LANDS

From the 1947 questionnaire you will note that no answers were received from Nova Scotia, Alberta or the Yukon. The answers from the other jurisdictions dealt almost entirely with mining lands as distinct from lands acquired or concessions granted for the extraction of petroleum and natural gases. It is accordingly requested that you furnish me with as complete a statement as you can as to the basis of the acquisition of land for each of the three purposes.

In developing your answers you will probably find it helpful to refer to the 1947 questionnaire and the answers thereto. While it is recognized that mining rights are usually granted on lands acquired or leased from the Crown there will be instances, particularly in regard to the extraction of petroleum and gas where such rights are acquired from private owners. In this latter instance it is recognized that there will be no uniformity to this basis of acquisition and no attempt should be made to deal with this phase of the matter in this questionnaire except, of course, to the extent that government may require some additional payment.

ANSWERS

- (1) NOVA SCOTIA.....not supplied.
- 2) NEW BRUNSWICK. C. S. Clements, Inspector of Mines.

Oil and natural gas (throughout entire Province property separate from soil and vested in Crown).

License to Search — granted by Lieutenant Governor in Council.

Licensees may, after production commences, apply for and obtain a 99 year lease (Royalty 5 per cent of commercial value of petroleum and natural gas).

All other minerals (with exception of a number of old grants, which reserve to Crown generally gold, copper, silver, lead and coals) ownership vested in Crown.

Mining Claim — (May be renewed for one year only after year of staking). Assessment work 25 man days per claim.

Mining License * (renewal from year to year on reporting 25 man days work per 40 acres). After mine has been operated for six months may be converted to:

Mining Lease * 20 years, renewable to 80 years.

- * rental \$10 per 40 acres. In case of lease royalty paid is credit on rental.
- (3) QUEBEC.....not supplied.
- (4) ONTARIO.....A. R. Crozier, Mine Assessor, Toronto.
- (a) (i) Mineral lands may be acquired from the Crown by staking out as a mining claim. On completion of the assessment work and payment of \$2.50 per acre in unsurveyed areas and \$3.00 in surveyed, a patent is granted which includes the surface and mineral estates; where a patent includes only the mining rights the price per acre is one half of these amounts.
- (ii) Mineral lands covered by water are usually acquired from the Crown under license of occupation at a rental of \$1 per acre for the first year and 25c. per acre thereafter.

(iii) Mineral lands situated within a forest reserve and in certain other areas may be acquired by lease only. Such leases are drawn for 10 year periods at rental of \$1 per acre for the firs' year and 25c. per acre for the following 9 years on renewal for subsequent 10 year periods. The rental is 10c. per acre per year.

NOTE: All mining lands howsoever severed from the Crown are subject to an acreage tax of 10c. per acre per annum.

- (b) Petroleum lands may be acquired from the crown under boring permit and by staking out of an area of not more than 640 acres in extent. Fee for boring permit is \$100, per year. Upon the discovery of petroleum in commercial quantities the Minister may direct the issue of a lease of the land for 10 years at an annual rental of \$1 per acre and the holder of such lease shall expend not less than \$2 per acre in development work. At the end of the first 10 years the lessee shall have the right to renewal of such lease for a further period of 10 years at the same rental and at the expiration of the second ten year period for a further term of 20 years at a rental to be agreed upon. Petroleum lands under water may be acquired by lease and payment of rental and/or a royalty agreed upon.
 - (c) Natural gas, salt and coal. Same as petroleum (b).

(5) MANITOBA..Mr. J. R. McLeod, Supervisor, Local Government Districts, Legislative Buildings, Winnipeg.

Oil and natural gas — Leases granted for a primary term of three years and a second term of six years upon payment of rental as hereinafter described.

When production of oil or natural gas or both is obtained and where at any time before the expiry of the lease the Minister is satisfied that the productive life of the lease is longer than the term of the lease he may renew the lease for successive periods of not more than six years each.

The rental of all lands held under a lease of oil and natural gas rights for the primary term of the lease shall be 50c. per acre per annum payable yearly in advance. If production is not obtained during the primary term the lessee shall pay during the secondary term an annual rental of \$1.50 for each and every acre comprised within the said lease; if commercial production of oil and gas is obtained within the primary or secondary term the annual rental for each and every acre of land shall be 50c. payable yearly in advance.

Within one year from the date of the lease or such other time as the director may order the lessee shall have installed upon the lands described in his lease such machinery and equipment suitable for carrying on drilling operations as the director may prescribe.

A credit may be established in favour of a lessee for his expenditures in drilling and in geological or geophysical exploratory operations upon a location, such credit shall allow a fair allowance for depreciation on machinery.

Where a credit has been established in favour of a lessee such credit in the discretion of the director may be used by the lessee for a period not in excess of three years from its establishment to satisfy the rentals on any oil and natural gas leases in the name of such lessee of which he is the sole and beneficial owner any portion of which lease is within a radius of 25 miles of the well site exclusive of each 160 acre area on which the presence of oil and natural gas has been determined.

(6) SASKATCHEWAN. Mr. A. I. Bereskin — Controller of Surveys, Regina.

Quartz minerals — Mine operators in the Precambrian area of Saskatchewan may obtain renewable leases to surface rights on payment of \$1 per acre per year. Sub surface rights are similarly leased on payment of annual rental of \$5 per claim for the first 21 years and \$10 per year per claim after 21 years.

Mine operators in the past years have also received land grants from the Crown to allow room for expansion of mine plant and the lands except for the mineral rights, are owned by the company.

Coal — Where the land is owned by the Crown surface rights have been leased to mine operators on payment of an annual rental of \$1 per acre. Sub surface rights are similarly leased at \$1 per acre per year.

Lands acquired for petroleum, natural gas and sodium sulphate mining are obtained as follows:

Subsurface rights.................50c. per acre first year

\$1 per acre per annum subsequent year

Natural Gas — Surface rights......\$1 per acre per year

Subsurface rights......50c. per acre first year

\$1 per acre per annum subsequent year

Sodium Sulphate — Surface rights......\$1 per acre per year

Subsurface rights.......25c. per acre per annum

In addition to the above rental charges royalties are, of course paid on mineral production.

ALBERTA.....not supplied.

(8) BRITISH COLUMBIA.....not supplied.

(9) NORTH WEST TERRITORIES.....not supplied.

(10) YUKON.....not supplied.

QUESTION 2

ROADS IN MINING TOWNSITES AND CONNECTING ROADS TO MINING TOWNSITES

It is requested that you advise as to whom is responsible for the construction and apportionment of the cost of construction and the cost of maintenance of connecting roads between:

- A. Mining Townsites and main provincial highways.
- B. Mining Townsites and mining properties.

With regard to B. there will be two cases, one where the mine is situated within the townsite area and two, where the mine is beyond the townsite area.

ANSWERS

- (1) NOVA SCOTIA. Not supplied.
- (2) NEW BRUNSWICK
- A. At this time provincial highways extend to or pass through mining towns. If highways were constructed to new mining towns it is believed federal assistance probably would be maintained.
- B. Some roads are provincial highways some are private roads. In New Brunswick at this date all such roads are but a few miles in length.
- (3) QUEBEC. L. A. St. Pierre, Directing Engineer, Department of Mines, Quebec City.

In cases where roads have to be built from townsites to main highways or to mines, these roads are built and entirely paid for by the Department of Mines. Main streets in the townsites are often built and paid for by the Department of Mines.

(4) ONTARIO

A. (i) In organized areas the municipality is responsible for the construction and maintenance of the roads. Usually however the Department of Highways contributes 50 per cent or more.

- (ii) In unorganized areas the Department of Highways will by agreement with the statute labour board or other responsible parties contribute usually about 50% towards the cost of construction.
- B. (i) In organized areas the Department of Highways will contribute by agreement about 50% but will not assume responsibility for construction or maintenance.
 - (ii) In unorganized areas the Department of Highways will contribute by agreement.

NOTE: In organized areas the municipalities receive a portion of the gasoline tax towards the maintenance of roads and in unorganized areas the local statute labour board by agreement with the Department of Highways may receive a subsidy towards maintenance.

(5) MANITOBA

A. As mining townsites are usually located in unorganized territory the decision would rest with the provincial government as to whether or not such a connecting road should be built.

If construction of a connecting road was approved the cost of construction and maintenance would be assumed either by the province or jointly with the federal government depending on the agreement entered into prior to the decision to construct a connecting road.

The road from Mile 82 on Hudson Bay Railway to the Townsite of Snow Lake constructed jointly by federal and provincial authorities.

B. Roads from townsite proper to mining property responsibility of mining company whether the mine is inside or outside of townsite area.

(6) SASKATCHEWAN

Generally speaking there has been no policy laid down in regard to apportionment of costs of road links from mine townsites to the provincial highway. Such factors as other uses of the road such as opening new lands for settlement, forestry extraction and protection against forest fires, tourist attractions made accessible by roads etc. have to be considered.

A. There are few mining townsites in Saskatchewan but generally speaking there has been no set policy in regard to construction of roads within the townsite. Each case has to be considered in the light of special conditions.

Roads within the townsite are generally constructed by the village or town authorities, or rural municipality where the lands effected are not owned by the mine company. The mine company may make a contribution to the town council. Roads over privately owned lands are constructed by the mine company.

Connecting links between mining townsite and provincial highways network have, in the case of Flin Flon Mipawin Highway now partly constructed, been made by the provincial government. Such factors as opening up new lands for forestry extraction encouraging new mineral developments, tourist attractions etc. have to be examined before any expensive highway hookup to a minesite is considered. Apparently in some cases the Dominion Government has made a contribution towards the cost of highway links from the mine townsite to the provincial highway but the cost of the highway to Flin Flon has been borne entirely by the province.

In order to encourage development of new mineral finds the Department of Natural Resources and Industrial Development of this province is considering feasibility of making grants towards road construction from mine site to provincial road network.

B. There are very few instances of mines being located beyond the townsite area, but generally speaking the province or the municipality has built and maintained links between the mine and the townsite. Where the mine lies within the townsite the village or town authorities are responsible for road construction to the mine property and the mine responsible for roads over its lands.

- (7) ALBERTA.....not supplied.
- (8) BRITISH COLUMBIA. James Strang, Chief Inspector of Mines, Victoria.
- A. If the road is not on the mining property the road is maintained by the public works department of the province.
 - B. If it is on the mining property the operating company maintains it.
- (9) NORTH WEST TERRITORIES not supplied.
- (10) YUKON.....not supplied.

QUESTION 3

REAL PROPERTY TAXES

It is requested that you advise as to the basis of assessment and taxation imposed on the real property of mining companies i.e. on lands, buildings and equipment by the province or by the municipality (if any) in which such real property lies.

NOTE: It is not expected that if a mine is within an organized municipality that there will be dual assessment and taxation by both the municipality and the province.

ANSWERS

(2)

- (1) NOVA SCOTIA..not supplied
 - NEW BRUNSWICK

Lands, building and equipment assessed by municipality on actual and true value.

(3) QUEBEC

The real property of mining companies i.e. land, building, and equipment is in the Province of Quebec taxed by the municipality only. The province does not assess these properties for the purpose of taxation. The assessment is made by a board of assessors appointed by the municipality. The taxes are based on the value of the property as given on the valuation roll, which is ordinarily kept very low. The rate of taxation varies in different municipalities within the limits of \$1 to \$1.75 per \$100, valuation.

The same valuation is used for school taxes which the mining companies have also to pay. The rate of these school taxes is approximately the same.

(4) ONTARIO

In organized municipalities the municipality cannot assess or tax the buildings, plant, machinery or equipment used mainly for obtaining minerals from the ground and storage of the same, nor the mineral-ore under such lands.

In lieu of this the municipality receives from the mining company 15 mills on the first \$2,333,333.00 of profits as determined under the mining tax act and 25 mills on all profits in excess of that amount.

All mining lands are subject to municipal assessment and tax on the basis of actual value and on buildings and equipment not used in mining operations. In organized as well as unorganized territory the holder of mining lands is subject to a provincial acreage tax of 10c. per acre. In municipalities this tax accrues against the mineral estate (mines and minerals) only while in unorganized territory it accrues against the mining land or property.

(5) MANITOBA

All the property of the mining company within the Snow Lake Townsite is subject to assessment

and taxation by the local government district of Snow Lake in accordance with the provisions of the Municipal Act. In addition the mining company contributes \$6,000 annually to the district in lieu of taxation on the mining plant which is outside the boundaries of the townsite.

(6) SASKATCHEWAN

No real property taxes are paid on mining company properties in northern Saskatchewan. It is believed however, that a contribution is made by the company to the town of Flin Flon.

Mining companies in the settled areas of Saskatchewan such as operators of coal mines, sodium sulphate plants, oil operators, are assessed on their plant and equipment. With allowance for depreciation the assessment averages about 50% of original plant valuation. Average tax rate is about 34 mills. The taxation principle is based on the idea that the plant and equipment is removable or salvageable when all resources are depleted and a more equitable tax is imposed in so doing rather than taxing land. In many cases no tax is applied to land and in few isolated cases tax on land is a minor one based on raw land valuation.

- (7) ALBERTA.....not supplied
- (8) BRITISH COLUMBIA

Under the Taxation Act it is 1% of the total assessed value for lands and improvements.

Under the Public Schools Act a mill rate is fixed by the assessor according to requisition from the school board of the district. Land value at 100% of assessment value.

Improvements at 75% of assessment value.

- (9) NORTH WEST TERRITORIES.....not supplied.
- (10) YUKON.....not supplied.

SCHEDULE B

Questions and opinions in respect of the Co-ordinator's statement No. 2 of July 27, 1948. QUESTION 1°

ACQUISITION OF MINERAL LANDS

- A. Where such lands are acquired from the Crown is it preferable that acquisition be by purchase or by lease.
- B. To the extent that mineral rights are acquired from the Crown should such rights include the surface rights.

NOTE: At the informal meeting of the Committee held at Keltic Lodge those present were of the opinion that in all jurisdictions there should be a severance of the mineral rights and vice-versa.

Opinions from Government Appointees

- A. (i) By lease
 - (ii) It is believed that acquisition of mineral lands by lease is preferable to outright purchase from the Crown.
 - Where mining lands are acquired from the Crown the mines and minerals or mineral estate should be granted by purchase and the surface rights or surface estate by lease.
 - Surface rights can be purchased after the mineral rights are paid for in full by mineral rights holder, if the land is not reserved or run by some other person.
 - (v) By lease.

- B. (i) Only such surface as needed for performance of exploration and mining.
 - (ii) No.
 - (iii) No. Surface rights should be purchased separately.
 - (iv) It should be possible to acquire mineral rights by purchase in fee simple but the surface should not be included but rather granted under lease upon the terms and conditions of the Crown.
 - (v) It is believed that mineral rights should not automatically be associated with surface rights.

Opinions from Mine Operators' Representatives

- A. (i) It is preferable that acquisition be by purchase.
 - (ii) Suggest claims may be crown granted after five years of assessment work. Suggest however, a limit to number of years patented claims may be held without doing any work on them.
- B. (i) Agree that there should be severance of mineral and surface rights but the owner of mineral rights should have first refusal to the surface of his claims.
 - (ii) Where mineral rights are acquired by a mining company for the purpose of mining minerals thereon, the surface rights should be included. Where the surface is not required for activities directly concerned with the mining or treatment of the ore, the owner should have permission to sell the surface rights separately from the mineral rights subject to provincial regulations governing establishment of townsites.

QUESTION 2

LOCATION OF MINING TOWNSITES

Should the location of mining townsites for individual mines or for groups of mines be under government supervision?

Opinions from Government Appointees

- (i) Yes.
- (ii) It is recommended that location of mining townsites be under government supervision.
- (iii) Should be under government supervision.
- (iv) It should be necessary for a government department to see that buildings are erected in such a manner and in locations that the ordinary laws of health and sanitation can be observed.
- (v) Should be under government supervision.

Opinions from Mine Operators' Representatives

- (i) Location of mining townsites should be subject to government approval.
- (ii) For individual mines no. For groups of mines yes, if mines cannot agree on location.

QUESTION 3

SUPERVISION AND USES OF LAND

- A. A site for a townsite having been chosen should the layout, use and subsequent disposal of the land be under government supervision.
 - B. What steps might be taken to curb speculation of vacant land.

Opinion from Government Appointees

- A. (i) Layout, use and subsequent disposal of land selected for a townsite should be under government supervision.
 - (ii) Should be under government supervision.
 - (iii) If it is decided to layout a townsite that has the possibility of being fairly permanent then there should be government supervision of the disposal of lots and conditions laid down as to type of home built on lots.
 - (iv) Yes.
 - (v) It is believed that layout and subsequent use of the lands should be under governmental supervision.
- B. (i) Certain crown lands should be acquired by company, miners, necessary personnel and for necessary buildings and activities only later by bona fide residents.
 - (ii) Disposal of such lands should be under government supervision.
 - (iii) Restrict sale of lots to mine employees and persons authorized to do business within the townsite throughout the development of the townsite.
 - (iv) Probably the best means of curbing speculations is to have surplus lots laid out as required and by issuing long term leases instead of selling the land.

Opinions from Mine Operators' Representatives

- A. (i) The layout of the townsite should be subject to government approval. The use and subsequent disposal of the land should not be subject to government supervision except in so far as regulations applying to townsites are concerned.
 - (ii) Yes, but working closely with the mining companies.
- B. (i) The administrator could sell lots only to bona fide workmen or could retain some control by leasing for a certain period.

QUESTION 4

FINANCING MINING TOWNSITES

To what extent should a mining company be asked to contribute to municipal taxation in which its property is situated for:

- A. Cost of administration.
- B. Cost of maintenance.
- C. Capital improvements.

OPINIONS FROM GOVERNMENT APPOINTEES

- A. (i) The company should contribute at least its full share based on the assessed value of the company property within the townsite.
 - (ii) To the extent of the portion of taxes payable to the municipality on profits as provided under the mining tax act and the assessment act.
 - (iii) A rough and ready yardstick should be that the mine contribute the full amount of taxes on its plants, equipment and buildings. This should apply to the mine when it is in the production stage. When the mine is in the development stages, reduced taxes should be levied. It is believed therefore, that the mine should be taxed for cost of municipal administration based on assessment of its revenue producing equipment and plant.

- B. (i) Through development stage company should be responsible.
 - (ii) The mine operator should be properly relieved of a portion of taxes where the mine supplies fire protection, hospitalization etc. If the mine cannot pay a just share of taxes levied by the community it cannot be considered an economical operation.
- C. (i) Company and Townsite.
 - (ii) Capital improvements probably should be made by the mine where it is located in hinterland or where the town may be abandoned when ore reserves are depleted. Where indications are that settlement will continue and the settlers can engage in other work should the mine close down probably the mine should bear only a share of the cost of capital improvement based on its tax assessment. Perhaps a percentage of the net earnings of a mine should be given to a town if it is considered that such would be fairer to the mine than taxing the properties and plant.

Opinions from Mine Operators' Representatives

A. (i) A mining company should be liable only for rates levied by the municipal corporation on such property as is at present subject to taxation in the Mines Tax Act. The proportion paid to a municipality should be in relation to the services provided by the municipality.

QUESTION 5

GOVERNMENT OF MINING TOWNSITES

The form of municipal government best suited for mining townsites:

- A. where there is but one mine within the area.
- B. where there are two or several mines in the area.

Opinions from Government Appointees

- A. (i) If the mine is an established producer an improvement district.
 - (ii) Incorporated village, town or city.
 - (iii) Local government district.
 - (iv) It is believed that the form of municipal government best suited to townsites is one with elected representatives rather than that of a municipal overseer or governmental representative.
- B. (i) If possible use the same townsite for a group of mines within the same area.
 - (ii) Where several mines within area improvement district.
 - (iii) Incorporated village, town or city.
 - (iv) Where there are two or several mines in the area it is believed that municipal government based on elected representatives, such as mayor or alderman from the various districts will adequately represent the view points of the settlers as well as that of the respective mine operators.

Opinions from Mine Operators' Representatives

- A. (i) Company town. No municipal government up to 1,000 population.
 - (ii) The form of municipal government best suited for mining townsites is the standard municipal form of government with a council and mayor elected by residents.

- B. (i) The provincial authorities should have power to withhold or grant permission to establish an additional townsite or extend the boundaries of the present one.
 - (ii) Incorporation as a village, town or municipality.

QUESTION 6

HOUSING IN MINING TOWNSITES

A. The circumstances if any, under which mining companies might be asked to resume responsibility for the housing of their employees.

B. The extent to which government might be warranted in setting up standards for housing, water supply, sanitation, schools, hospitals etc.

Opinions from Government Appointees

- A. (i) Company should be responsible for financing the construction of homes for their employees.
 - (ii) It is believed that the mine operator should assume full responsibility for the housing of employees. A good home is some compensation to a miner and his family for living in isolated districts.
 - (iii) In the early stage of development and production where the future of the producing mine or mines is uncertain the company should be required to assume most of the responsibility of the housing of their employees.
- B. (i) Municipal or civic government should establish standards similar in so far as possible to other populated areas of like size.
 - (ii) The government should supervise and fix housing standards, water supply, sanitation, schools and hospitals and if need for financial assistance can be established government should contribute.
 - (iii) Town planning scheme and all works to be performed by the company in compliance with the requirements of any statutes or regulations of the province applicable thereto.
 - (iv) The government is warranted in setting up standards for houses, water supply, sanitation, schools, hospitals etc. for all the province and there is no reason for making an exception in a mine area.

Opinions from Mine Operators' Representatives

- A. (i) Company should provide a certain number of houses for employees which should be amortized over definite period of time. Admittedly this is difficult in gold camps today where rents are low, building costs are high.
 - (ii) The very nature of the circumstances in the early days of a mining community makes it necessary that the mining company does assume the responsibility of providing the necessary housing for the great majority of their employees. Establishment of housing facilities by any agency other than the prospective owner will lead to all kinds of abuses.
- B. it The government should continue to prescribe standards and regulations as to sanitation and stipulate school and hospital accommodation to be provided. Housing standards should not be set up by any agency other than the local government elected by and responsible to the electors in the community concerned.
 - (ii) There are certain rules and regulations in most provinces regarding such standards, government inspectors could make suggestions but not necessarily superintend the work.

SCHEDULE C

SNOW LAKE TOWNSITE

Townsite located 30 miles north-west of Wekusko on Hudson Bay Railway (Mile 82). Gravel road (40 miles) constructed jointly by Federal and Provincial Governments. Subdivision of Townsite made by Government 1946.

Initial subdivision: 174 residential lots

20 business lots

7 special lots as follows: School, hospital, recreational center, 2 departmental lots and 2 company lots (dormitory and staff house)

It is intended to subdivide an additional 100 residential lots next year 1948.

Townsite to serve employees of Howe Sound Exploration Company which Company is developing a gold mine adjoining the Townsite.

Administration

The Townsite together with approximately 400 square miles adjoining the same set up as a Local Government District under the "Local Government Districts Act".

Administrator responsible to the Municipal Commissioner has somewhat the same powers as a Municipal Council.

Reference Board of four members appointed to assist or advise the Administrator mainly on points of policy.

Lots purchased by Administrator from Government at a price of \$15.00 per lot. Lots being sold by Administrator at following prices:

Residential....\$ 5.00 per foot Business....\$ 50.00 per foot Industrial.....\$ 25.00 per foot

Mining Company by agreement received 49 lots at a nominal price of \$30.00 per lot to erect dormitory, staff house and dwellings for members of the mine staff.

Sale of lots restricted to mine employees and persons authorized to do business within the Townsite until such time as a surplus of lots is made available.

Development

The Administrator, Government and Mining Company entered into a tripartite agreement. This agreement among other features provides for the following:

The Company to advance \$325,000.00 in the form of work and material to develop the Townsite as follows:

\$175,000. for — Clearing and grubbing, street improvement and construction; sewer and water services (Mains on street); electric power distribution system including transformers.

\$150,000. for — Buildings, school, hospital and recreational centre.

The Company will also carry out additional work paid for by the Administrator from the profit

derived from the sale of lots (\$90,000). This work to be carried out as and when instructed by the Administrator, who must first obtain the approval of the Municipal Commissioner as to how such moneys are to be spent.

All work done in the Townsite to conform to a definite development plan and the approval of the Administrator obtained before any work commenced.

Maintenance, Operation and Administration

Under the same agreement the Company is to perform the following maintenance works at its own expense:

Maintain streets and boulevards.

Operate sewer and water services, including treatment plant.

Supply water from Company's reservoirs (water obtained from Snow Lake).

Maintain electric power distribution system.

Collect and dispose of garbage.

Provide, maintain and despatch fire fighting apparatus.

The Company also supplies electric power at a rate approved by the Municipal and Public Utility Board.

The Company is responsible for operation and maintenance of the Hospital and community centre.

The Company contributes \$6,000. annually to the District over and above the programme of works outlined above, and in lieu thereof the mining plant of the Company is free from municipal taxation.

The Administrator is responsible for school, police protection, social services, Municipal Commissioner's levy and administration costs. The cost of this is defrayed by a tax levy within the Townsite including all Company houses and the dormitory.

All building within the townsite this year has been carried out by the Company, and consists of 40 Company houses, staff house, hospital and school.

A public notice was published listing the various business enterprises to be opened up and calling for applications. Awards are now being made and it is the opinion of those directly concerned with the townsite that a large building programme will be launched next year by private enterprise.

SCHEDULE D

Memorandum from Mr. J. P. Messervey, Deputy Minister, Nova Scotia Department of Mines. (Supplement to the 1947 Report)

REPORT ON MINING TOWNSITES - PROVINCE OF NOVA SCOTIA

(1) Acquisition of Mineral Lands

All minerals are Crown minerals in Nova Scotia, with the exception of limestone, gypsum and building materials. These mineral rights are separate and apart from the surface rights. No holder of mineral rights may enter upon any private lands without the consent of the owner. Where the owner of the land is uncooperative or exorbitant in his demands, the holder of the mineral rights has the right to appeal to the Minister of Mines for a hearing. The Minister, after hearing all parties, may determine the amount of compensation to be paid to the owner or owners of surface rights for damages caused by prospecting, and for acquisition of surface rights necessary to carry on mining or quarrying operations. There shall be no appeal from the Minister's decision or from his determination as to the amount of compensation to be paid to the owner or owners.

Crown lands, whether ungranted or under timber license or lease, may be entered upon and prospected only with the consent of the Minister of Lands and Forests, and upon such terms and conditions as he may prescribe.

(2) Location of Townsites

No legislative control.

(3) Subdivision and Uses of Land

The Department of Municipal Affairs for the Province of Nova Scotia, under Chapter 8 of the Acts of 1939, now exercises control over communities through regulations under the Town Planning Act. A Town or municipality can set up a Town Planning Board consisting of seven persons. The key powers and duties of this board are as follows:

- (a) To prepare an official town plan on which the town boundaries are outlined. The Town Council may acquire any land it considers as necessary for the carrying out of its official town plan.
- (b) The Board is empowered to make a zoning law, regulating the use of land within the limits of the town.
- (c) The Town Planning Board is empowered to set up subdivision regulations subject to the approval of Council to control the layout of all subdivisions within the town, and also for all subdivisions situated within two miles of a town or three miles of a city as the case may be. These regulations can include provisions for zoning, size of lots, the grades and widths of road, the size of areas to be reserved for public purposes, provisions for sewer and other utilities.
- (d) For the purpose of carrying out the provisions of the Act any planning board may engage such town planning engineers, consultants, etc. as may be necessary for the carrying out of its programme. (See publication "Community Planning" page 40 and pages 18-21).

(4) Financing of Mining Townsites

The so-called mining towns in Nova Scotia finance themselves in the same manner as any other municipal unit in the province under the provisions of the Municipal Affairs Act of Nova Scotia.

(5) Government of Mining Townsites

There are no company towns in the Province of Nova Scotia, all towns are open towns and are governed under the provisions of The Towns' Incorporation Act of Nova Scotia (see Chapter 3 of the Acts of 1941, The Towns' Incorporation Act). There are no mining regulations respecting settlements surrounding mining operations in Nova Scotia.

(6) Housing

In the early stages of coal mining in Nova Scotia, the larger coal mining companies built houses near the mine and rented them to their employees. Several years ago the companies disposed of these houses and gave the titles in fee simple to the purchasers. The last of these to be disposed of were the company houses of the Inverness Coal Mine (Government Control) at Inverness. Last year the balance of the unsold properties were turned over to the town of Inverness by an Act of the Legislature.

The Coal Mines Regulation Act and the Metalliferous Mines and Quarries Act control only the construction of buildings used directly in connection with mining operations.

PROBLEMS AFFECTING THE COAL INDUSTRY OF WESTERN CANADA

JOHN CRAWFORD

Director of Mines, Department of Mines and Minerals, Alberta

Mr. Chairman, Honourable Ministers, and Gentlemen:

I have no doubt the coal technicians assembled here today know the situation regarding the so-called problems as affecting the coal mining industry both in Eastern and Western Canada. I have been attending those meetings, Sir, for a matter of five years, talking coal and discussing proposals put forth with a view to a solution of the various bottlenecks which prevent the industry from developing into a highly productive efficiency. The Committees have discussed all matters entering into the efficient production, preparation, and marketing of our coal products. These Committees have dealt with such matters as education in the coal mining industry, and we, in Alberta, while profiting from the various discussions have contributed our share to the general well being of the subject.

The subject of certification has been aired and examined from every angle, as has been mine mechanization, together with the need of testing facilities and approval authorities for the various types of electric machines, switchgear and cables used in and around our mechanized mines of today. Mining laws and safety regulations for mines have also been dealt with. However, while much has been accomplished, there still remains a great deal to be done. Effective co-ordination of certification and coal mine regulations are not yet finalized. A great deal of research work is constantly being carried on in the laboratories of the Research Council of Alberta with a view to suitable preparation, cleaning, and up-grading of the coals of the Province.

There is an impression among the consumers of the Eastern Provinces that all coal exported from Alberta is of one class and grade. This is a highly erroneous impression and I make haste to correct it. The coals of Alberta are produced from three main coal bearing horizons, each horizon being underlain by a number of coal seams, and it should be noted that coal from different seams in the same horizon will in many cases differ greatly in their chemical and physical characteristics. Coals of Alberta are classified under five group divisions. It is seen from this that consumers must know the type of coal they require, and the only way they can be assured of getting it would be by regulations requiring that particulars of the coal follow the shipment from the mine to the consumer. In Alberta, there is an Act known as the "Coal Sales Act", but the jurisdiction of this Act extends only to the Provincial boundary, and what takes place after that is anyone's guess.

In view of the fact that there are in Alberta many different types of coal, you may say, "Well, Crawford, if you have all the types of coal you mention in Alberta, what's the matter you don't sell more coal? There must be something wrong somewhere." Well, this is a question we have been trying to answer for a greater number of years than I care to remember. It can be said that large sums of money have been spent in sending delegations East over the years with a view to extending the markets for Alberta coal, but in most cases little or no results have been shown. It has been said, why don't you mechanize and cut your costs? Let me say we have been doing just that in a progressive manner for many years. As a matter of fact, over the past few years, hundreds of thousands of dollars have been spent in mechanizing the mines, and today even the small mines have introduced a certain amount of mechanization. As a result of this progressive mechanization of the mines, the work of supervision and operation of machines require the services of higher qualified men. In the official field, the same requirement exists. Officials today must be men at the top of their class, as the safety of life and limb depends upon their direction. We have reached a point in the mechanization of our mines, beyond which we cannot go. The reason is that if efficiency in production is to be secured, then mechanized equipment must be maintained in steady operation during the complete production period of each day. A survey of the situation indicates that this mechanized

equipment is not kept in continuous operation and as a result, benefits that could be expected from the introduction of mechanical methods of production are completely nullified by an unstable and intermittent market.

Then again, we must not lose sight of the fact that where mines are required to supply heavy demands for short periods, the question of development comes into the picture. This phase of mining, unless carried on simultaneously with normal extraction, creates a heavy burden of expense. There is no doubt but that the logical solution to the marketing problem of Alberta coal would be a long term progressive market, thus enabling the operators to develop progressively their mines on a mechanized basis. In this way, they would be in a position to sustain peak loads as and when occasion required.

To show the effect of mechanization, let me say that we have two adjacent mines working on the same seam. One is completely mechanized and the other only mechanized to the extent of coal cutters; all other work being done by hand. The mechanized mine is shipping on the railroad to an intermittent market, the other is supplying the local market. However, the slack of the local market is taken up by small railroad shipments during the year. It is highly significant to note that the partly mechanized mine is producing cheaper coal than the fully mechanized operations, again showing the need for long term progressive markets, if we are to get the efficiency we expect from mechanization.

While the production figures for the first seven months of the current year in Alberta indicate an increase over the preceding year, we actually have a decrease of approximately 500,000 tons. This is due to the fact we had a six weeks strike at the beginning of 1948. Now with all this mechanization of our mines taking place, surely we should be showing a decided increase in tonnage, a gradual building up, if ever so slightly, over all previous years. The records indicate this is not so. Now in the face of this condition, can the Alberta operators be blamed if they re-evaluate their position in the light of mechanization as affecting progressive overall production? Some people, Mr. Chairman, will point to what is being done in the U.S.A. in the matter of mechanization as affecting a downward trend in costs, however, those same people take care to select from among the thousands of operating mines in the U.S.A., only those which are operating under the very best natural conditions, and might be termed underground quarries. Together with this natural Godgiven advantage, they have unlimited markets for their product, sufficient to take care of all size types. This again brings before us our unfortunate position, i.e. the lack of long term progressive markets.

At previous meetings, I have stressed the fact that the problem in Alberta is not concerned with production but with the acquisition of adequate progressive markets. In the coal mines of Eastern and Western Canada, the production of coal with the greatest possible measure of safety is keenly appreciated by the officials of the inspection branches of the Departments of Mines in each Province. As a result, the inspection personnel are men with many years of experience in all phases of coal mining, supplemented with a sound academic background particularly of the applied type, whose duties are the continuous inspections of mines in the interests of safety. All mine officials in charge of responsible work are fully certified by the competent governmental authorities after a very searching examination into their qualifications. It follows therefore, that the screening of applicants for positions of trust and authority is such that none but the top ranking men are intrusted with the safety of operations. The hazards met with in coal mines are so many times greater than those met with in metalliferous operations, that no comparison can be made.

In Alberta where coal is mined from three separate coal bearing horizons, each geological formation dictates many hazards which are all reflected in the mining of coal from the underlying beds. From this, it can be seen that a great many methods of extractions are involved with varying types of equipment and control. It might be well for me to mention that the mines operating in Nova Scotia, Alberta and British Columbia have similar basic hazards, i.e. inflammable gas, dust, and the control of roof and sides. The respective severity of these hazards is reflected in degree only.

As the coal mines operating across the Dominion extend further and further underground from the portal, past systems of haulage such as hand putting, horse haulage, and ropes to some extent have become obsolete and have been replaced by storage battery, trolley, and within the last two years, diesel locomotives. The last named it is hoped will solve the transportation bottleneck existing in the coal mines of Canada. We recognize that the complete electrification of our mines where possible, is absolutely essential in the interest of efficiency. In Alberta, mines are progressively proceeding with just such an electrification program.

At this point, I must make mention of a situation affecting the electrification of our mines of a highly disturbing and expensive nature, and one withal that adds additional cost to the ton of coal produced. Practically every electric motor including switchgear, cables and all forms of control, incorporating remote automatic panels, together with diesel locomotives introduced into the mines of Alberta, must be of a type that has been tested and approved for use in hazardous locations in mines. Over 90 per cent of this type of equipment entering the Alberta mines must bear the necessary approval plate showing that such equipment has been tested and conforms to the requirements of the Coal Mines Regulation Act of Alberta. Unfortunately at the present time, there are only two testing stations carrying on this work; one in the U.S.A. under the jurisdiction of the Bureau of Mines and the other in Buxton, England. In each case, the approved authority is a Government official vested with the necessary powers and authority. From this it may be seen that in view of this equipment being imported from abroad, the cost is much higher than if it could be bought in Canada. Not only that, but maintenance parts are not always readily available. This condition could be entirely changed, provided we had the necessary testing facilities and approval authority in Canada, I cannot too strongly urge that immediate consideration be given to this matter with a view to establishing an adequate testing station and a Governmental approval authority in the Dominion. It will be seen from the foregoing that there are many, many items that enter into the cost of a ton of coal, not the least being the labour cost, which will approximate 63 per cent of the whole.

Today I was asked as to the impact of gas and oil on the marketing of Alberta coal. While this is a matter dealt with by other branches of our Department, I have no hesitation in stating that as long as we are importing some 20 to 24 million tons of coal annually into the Dominion of Canada, there would appear to be a very large potential market to be explored and ways and means found for its exploitation in the interests of Canadian producers.

It must always be remembered that in the operating of coal mines there are certain fixed costs that cannot be reduced and any tampering with them would tend to lower efficiency. It is all very well for well intentioned, ill informed people to say, "Crawford, we can buy coal of equal heating value from the U.S.A. at less cost than we can secure Alberta coal." This is a highly superficial statement and conveys nothing and solves nothing. It is not even the truth. In dealing with a statement of this nature, Mr. Chairman, there are other economic considerations that must be examined. Firstly, let us say we are producing in Canada something in the neighborhood of 20 million tons annually; we are importing from outside sources from 20 to 24 million tons to satisfy our economy. I do not believe I would be far out in stating this importation would cost our dollar economy somewhere approximately \$250,000,000. If this importation is all from the U.S.A., this value must be paid in terms of United States dollars, thereby increasing the burden and causing further devastation to our balance of trade as expressed in dollars and cents. This however, is only one side of the picture as I see it. Speaking in terms of money, we must take into consideration one important function of this medium; that is the velocity of turn-over. For the purpose of explaining the subject under discussion, I would not be far out in selecting the number six as the coefficient of turn-over as applied to our internal money economy. Taking this 250 million and multiplying by our coefficient six gives us 11/2 billion dollars loss annually in our internal money economy. Now these are matters to which few of the consuming public give any heed, but it does show without doubt that consumers in Canada are paying a very fancy price for the privilege of burning imported coal.

I do believe, Mr. Chairman, that the time has now come to effect a concerted effort to educate the consuming public of Canada as to the ultimate effect of imported coal on our internal dollar economy. I do not say, Mr. Chairman that such a readjustment would be an easy task, but I do say this is a problem which should be a challenge to our economists and all others who have the promotion of our Canadian coal at heart.

In closing, Mr. Chairman, I would be remiss if I did not make mention of the Dominion Coal Board. Mr. Uren has wide powers and we look to his Board to hasten the orderly promotion of Canadian coal to such an extent that the markets will be greatly widened. This may be done regardless of the apparent cost in the matter of subventions and subsidies, for after all, the amount of money expended in this way will affect substantial savings to our internal dollar economy. This will also help to increase the amount of money in circulation in this Country for the many other purposes in need of financial aid.

PROBLEMS AFFECTING THE COAL INDUSTRY OF EASTERN CANADA R. D. HOWLAND

Vice President, Nova Scotia Research Foundation

Mr. Chairman, Honourable Ministers, and Gentlemen:

I think I will follow my good friend John Crawford's approach. John and Tom Casey started me out on the coal problem so I can follow their advice with some precedent. They took me down my first mines and tried to make a mining engineer — without much success, I'm afraid.

Let me just roughly refer to the type of operation we have in Nova Scotia and New Brunswick; and New Brunswick will correct me if I am somewhat out of date on their own problems here.

Broadly speaking, we have only one type of coal down in this part of the world. Of course, it is all good coal (Alberta has several kinds) and it is all high volatile bituminous coal. It has one or two disadvantages, such as a low fusion point of ash and possibly a little too much sulphur, and some of us will even admit we have a little too much ash at times. But broadly speaking it is all good coal.

Ninety per cent of the production in Nova Scotia is produced by the coal subsidiaries of Dosco. The bulk of that again is produced submarine in the Sydney coalfields. That is important because it highlights some of our problems which contrast with those of Alberta. As the major production lies submarine we have a great number of production problems and our cost of production is very relevant to our marketing problem; much more so, I would agree very much with Mr. Crawford, than are the problems of Alberta. The remaining 10 per cent in Nova Scotia is produced by some 10 smaller independent operators who produce largely for the domestic market, which would include not only the domestic in the sense of household consumption, but some production for the Canadian National Railways and some for the local industries and some for power plants.

In New Brunswick the operation, I believe, is considerably more local. The coal has a little higher percentage ash and I don't think I am exaggerating in that statement; but I can be corrected later by the Chairman if I am. There is a difference of operation here in that a large volume of production now comes from strip mining. It is largely for local consumption, including power production. No large volume of the production from New Brunswick attempts to get into the central Canadian market, I believe.

Something like 50 per cent of the production from Nova Scotia normally finds its way into the central Canadian market. By that I refer to the St. Lawrence Valley up to and including the City of Montreal. Under special conditions coal has been sent further west from Montreal.

As you would suppose, our problems are twofold; production problems and market problems. In view of the Dominion-wide scope of this Conference, I think we might deal with our production problems as referring to those mines which are concerned with a Canadian market as against the Nova Scotian market. Within those limitations you are really dealing with the operations of Old Sydney Collieries and the Dominion Coal Company at Sydney. Their production problems are very real because of this fact of submarine operation. It is a very simple thing, even to a person such as myself, who has no engineering knowledge, to visualize the problems of making entries on a narrow front to this field which extends about 35 miles along the seashore, and reaching out progressively under the sea from these entries. You have all the problems of extended levels, increased problems of ventilation, etc. so that you have to become an engineering genius, not an engineer, to be able to keep those operations going at an increased rate of productivity per man, which is the demand of the market.

Most of us would think it is a challenge enough to take out that coal and extend operations farther and farther to sea and maintain the level of productivity per man. Dosco's challenge is to do that and increase their productivity per man per day in spite of those odds.

Now the problem of the market is largely this — that during the war period, like every other industry the Nova Scotia coal industry suffered handicaps from which it has not yet fully recovered. We had the problem of having to accept people in the mines who were not qualified nor equipped to become qualified miners. We had all the unrest of that period. While we were suffering that handicap somehow in the United States they increased their productivity per man per day. This is partly due to the fact that they have more favourable conditions to work under. And the mines with which we compete in the central Canadian market are those who have the highest productivity in the United States.

It is meaningless, I believe, to refer to the fact that the average productivity is something like five or six tons per man per day in the United States. Of all the irrelevant figures I think that's the most irrelevant when we are considering our Canadian coal problem. What we are vitally concerned with is what is the productivity of the mines which ship coal to Canada and I think, if you examine those, you will find that they are more like 10 to 15 tons per man per day. That is what we are competing with; not with an average figure.

Thus our productivity has got to come up very much higher. Unlike Alberta, which has a relatively high productivity per man per day but a very high cost of transportation, in Nova Scotia we have a low cost of transportation, low not only relative to Alberta, but still relatively low as compared with the mines in the United States, which are supplying our market. Now it is true that our cost of transportation has gone up during the last few years, but we still have water transportation which is one of the big features in encouraging us to think we should get into the central Canadian market.

Periodically, as we have said before, the central Canadian provinces want to be sure of their coal supply; so they say let us turn to Canadian sources of supply. The problem in one sense then is theirs rather than ours; or National rather than Provincial. If we do want Canadian sources of supply in Central Canada, and there is something to be said for it from the viewpoint of security for public utilities as well as from a dollar saving point of view, then Canada (the taxpayer, presumably) has to pay for any additional costs. Our high costs are more related to hazards of production. In Alberta and the West I would say it is more to do with the costs of transportation. If you are developing a policy of increased Canadian production for the Canadian market then I would suggest one thing should be kept in mind, namely that as far as Nova Scotia is concerned one of our primary requirements would be for a stabilized market. No doubt our mines can produce more than they are and do this at a lower price than our present costs because of increased volume. But I would suggest that it would cause more disruption to our industry and adversely affect our economy, if that demand were for say 1,000,000 tons extra from Nova Scotia for one year and 2,000,000 tons the next year. What we would want to have would be some kind of contract, as you would normally have in

business, to produce so many million tons extra per year for the Ontario market. I think the Nova Scotia operators would certainly like to have a contract, possibly negotiated through the Dominion Coal Board, for say two million tons a year extra into the Ontario market on the basis of a stabilized market. I think the stability of the market is very important.

I agree with Mr. Crawford that something might be done about this problem of our lack of United States dollars through the coal industry. I know the problem a little from the general point of view and it is not just as easy as we might think looking at it from the coal problem side. At the same time there is a lot of what I would call "horse sense economics" in coming back to this fundamental problem of conserving United States dollars by reason of increased use of our own resources. While I do not consider it a simple problem, I do think there is a lot of sound sense in having Ottawa thoroughly review this matter.

The figures that Mr. Crawford gave, I think, are substantially correct, and to save 230 or 250 million dollars a year would mean quite an important item (even if it were only 100 million) in our balance of payments with the United States. I recently discussed some "down to earth" economics with a somewhat aged man who happened to come from Europe, and he referred to his recollection of days when his family was pretty poverty stricken. Speaking of fuel, he said he used to walk past two lumber yards where he could buy all kinds of firewood. Due to poverty he had to walk two miles past it, out into the woods in order to collect firewood. In one sense he noted it would have been more profitable to stop off at the lumber yards to buy this firewood. It was certainly not economic in one sense for him to walk a couple of miles farther to gather up the wood, but his absolute poverty made the proposition sound. There is a great deal to be said for our reliance on the United States for coal. Their coal is good and their record of supplying Canada during an emergency has been excellent. But it is a fundamental economic question as to whether we can afford to get so much of our coal from the United States.

Let me close by saying that since I reported to the Ministers two years ago at Keltic Lodge on the eastern situation, there have been three outstanding developments. One is the improved industrial relations in the Nova Scotia mining operations, which is something rather fundamental. We have not had good industrial relations over the years there, but I do think there is solid reason to say that industrial relations have definitely improved in the coal fields. Two, productivity has been increasing. It has been rather slow process but at the same time there is indication that our mines are really increasing their productivity, partly due to the mechanization programme, which is being successfully applied by Harold Gordon in the operations of Dosco in particular, and due to the improved industrial relations. In the third place, the market is getting more competitive; and Nova Scotia and New Brunswick are feeling the impact of that competition in marketing their coal. It is not so much a matter of competition with oil, although that is making some inroads on the consumption of coal in this part of the world. It is more to do with this problem of the United States increased productivity and our problem of catching up with them and recapturing our advantage on transportation. We lost our competitive position, very largely due to the difference of productivity in the United States and in Canada here.

I could go on, Mr. Chairman, to mention that we are doing something about these problems. The Department of Mines and the Nova Scotia Technical College, together with the Research Foundation are tackling some of the problems of the coal mining industry in association also with the Dominion Department of Mines and Resources. I should like to say this, that we have had very splendid co-operation from Ottawa regarding a geological survey of the Sydney coal field. We are doing quite an extensive piece of work on mine ropes; trying to find a scientific safety factor which will determine the time at which to take these ropes off. We are also carrying out quite an extensive programme on combustion with the thought that this type of work will improve the competitive position of our coal industry.

COAL INDUSTRY OF NEW BRUNSWICK

A. M. TOOKE

Manager of Mines, Miramichi Lumber Co, Ltd., Minto

Mr. Chairman, Honourable Ministers, and Gentlemen:

This field was first operated some 300 years ago and is one of Canada's oldest industries. Cape Breton has generally been regarded as the first district in North America to mine and export coal but actually this distinction belongs to New Brunswick.

Historical records left by John Winthrop, Governor of Massachusetts, during the first half of the 17th century, reveal that in the year 1643 a Boston vessel sailed up the Saint John River and through the Jemseg to the north side of Grand Lake where it took a load of coal for Boston.

New Brunswick's Minto field, where coal has been mined for such a lengthy period, is located near the head of Grand Lake in Queens and Sunbury Counties. It covers a total area of some 400 square miles with the known coal reserves occupying an area of approximately 150 square miles.

Due to the fact that Minto coal is not a domestic fuel almost the entire production is utilized by industries and railroads, namely by the pulp and paper mills, the New Brunswick Power Commission, and the Canadian National and Canadian Pacific Railways.

Although the first coal mined was some 300 years ago it has only been in the later years that production figures increased to any extent. For example in the 1890's the production merely averaged 7,000 tons annually and at the turn of the century it was slightly in excess of 10,000 tons and had climbed to a peak of 50,000 tons annually just before the start of World War I. During the 1914-18 period with greatly increased demands on the part of war industries the coal production in the Minto field averaged 165,000 tons. In the years 1921-30 the average figure was slightly over 200,000 tons annually and continued to rise during the following decade — reaching a peak of 547,000 tons in 1940.

During the years of the last great conflict the coal industry in the Minto field retarded instead of increasing. Unlike other industries which developed and expanded during the war years the Minto coal mines were shackled in as much as the price of coal to the consumer was pegged at a certain cost per ton while wages advanced over 100 per cent. The wage increases were taken care of by a production subsidy of \$1.00 per ton and this only if the actual increased cost per ton amounted to this figure. However, if the cost of production amounted to 50 cents per ton this would be the the figure that the operator would be subsidized. If it so happened that the cost of production amounted to \$1.25 per ton the operator would then be out of pocket to the amount of the 25 cents. This, together with the loss of suitable mine help to other more healthy fields of industry, almost wrecked the Minto coal fields.

Instead of the coal industry emerging from the war years in a very healthy state it was not until the price control was lifted in 1947 that we started to regain some resemblance of a coal mining community. Our production increased from an average of 350,000 tons during the war years to 523,000 tons with an all-time high payroll of over two million dollars — which classes us as one of the principal industries in the province, and is the main support of over 6,000 people.

I have been taking up a lot of your time in going over the start and up to the present in coal mining in the Minto area when no doubt you would be more interested in how coal is mined in this area and not when.

At the present time we use three methods of extracting the coal in this area, the longwall method, the hand-pick method, and the strip mining method. The first two methods are shaft mining. In the longwall method the longwall face is undercut mechanically by a chain type coal cutter and the

coal is hand loaded on to a shaker conveyor and conveyed out to mine cars which are in turn hauled out to the shaft bottom and lifted to the surface by a two-compartment shaft. This type of mining gives about 95 per cent total extraction.

The hand-pick is a room and pillar method which also gives about 95 per cent total extraction. However, in this method the coal is won by man power and explosives.

The strip mining method at the present time extracts about 60 per cent of the yearly production from the field. However, the thickness of the overburden and the thickness of the seam govern the amount of coal that can be won by this method. With the present type of stripping equipment in the field it is only possible to strip to about 45 feet and this only if the seam of coal averages 22 inches or over. This means that all coal over this depth would have to be extracted by the shaft mine method.

We have a covering over the seam of coal in the Minto basin ranging from a very few feet to as much as 180 feet in depth with a seam of coal varying from 14 inches to 30 inches, with very little showing 30 inches left in the field.

THE DOMINION COAL BOARD

W. E. UREN

Chairman, Dominion Coal Board

Mr. Chairman, Honourable Ministers, and Gentlemen:

It is a pleasure for me to be here today at your invitation, and to have this opportunity of explaining the duties and functions of the Dominion Coal Board.

As you know, the Board was created by proclamation on October 21, 1947, as a result of the unanimous recommendation of the Royal Commission on Coal. It is, consequently, a very young body not having reached its second birthday.

The Dominion Coal Board Act which was assented to on July 17, 1947, provides wide powers for the Board to investigate and to recommend to Government such policies or measures as may seem advisable respecting all phases of the coal industry in Canada. It should be particularly noted that the Board has power only to investigate and recommend while the final decision, and setting of policy remain in the hands of Government.

The main objectives of the Board were set out in the speech by the Right Honourable C. D. Howe on June 17th, 1947, when he introduced the legislation setting up the Board. In that speech, the Minister defined the various coal problems of Canada and to these there has since been added one more definition. These definitions have been adopted as guides or signposts of general policy towards the resolution of which, the efforts of the Board are directed. They are:

- 1. The maintenance of an adequate supply of coal for our national requirements;
- 2. The support of a sound and healthy coal producing industry in Canada;
- 3. The development of steady and adequate markets for the output from Canadian mines;
- 4. The provision at fair wages of reasonably full employment for Canadian coal miners;
- 5. The saving of foreign exchange through the further extension of the market for Canadian coals.

Before considering these broad objectives in more detail, it may be instructive to review briefly the responsibilities, duties and powers of the Board as set out in the Act.

The general responsibilities are set out in Section 6 wherein it may be noted that the Board shall

study, review and recommend to the Minister such policies as the Board considers necessary. In other words, the Board is empowered to initiate studies and investigations into any phase of the industry.

In order to discharge this wide responsibility, powers are conferred upon the Board in Section 7 to undertake or cause to be undertaken researches and investigations into practically every matter having to do with the production, importation, distribution and use of coal in Canada. There is, in this Section, provision of authority for the Board to investigate the co-ordination of the activities of Government Departments relating to coal and also of authority to investigate such other matters as the Minister may request or the Board deem necessary. It may be noted that there is in the provisions under this Section of the Act ample scope for the carrying out of the original purpose.

Apart from the general responsibilities as defined earlier in Section 6, there is laid upon the Board, in Section 8, the specific duty of administering, in accordance with regulations of the Governor-in-Council, any subventions or subsidies relating to coal voted by Parliament. There are also two general clauses laying specifically upon the Board the duty of performing such duties relating to coal as may be required from time to time by the Minister and such other powers, duties and functions as may be conferred or required by Parliament or by the Governor-in-Council.

The general clause requiring the Board to exercise such other powers, duties and functions as may be conferred or required by the Governor-in-Council is of particular importance when considered in conjunction with Section 11 of the Act. This Section creates authority to regulate and control the production, distribution and use of fuel under circumstances defined by the Governor-in-Council as a national fuel emergency. For this specific purpose, the term "fuel" is defined to include coal, light and heavy fuel oil including bunker "C" fuel oil together with other grades as set out in the Act. Under these emergency conditions, therefore, there is authority for Government to assume and delegate power to the Board to regulate and control fuel. It is no secret that steps have been taken to protect the national interest in regard to the supply of essential commodities in the event of war by co-operation with the United States Government. In this regard, fuel is no exception and, in virtue of the emergency regulations, some consideration has been given to the co-ordination of supply.

It will be noted that except under the conditions of a national fuel emergency, the powers and responsibilities of the Board relate to coal only. There is one partial exception and that is, the power to investigate the position of coal in relation to other forms of fuel and energy. The everyday responsibilities of the Board with respect to oil, gas or electricity are, therefore, secondary and in respect only to their effect upon the position of coal.

These functions and responsibilities are of a dual nature in that they concern the relations of the Board with the Minister on the one hand and with other Government bodies and the industry on the other.

In respect to the former, it is the duty and responsibility of the Board to initiate investigations and inquiries into such matters in connection with coal as may be deemed necessary in the development of the broad principles. The Board is expected to maintain information on the industry for the advice of the Minister, to develop plans for the furtherance of the main purposes and to submit reports and recommendations to the Minister for consideration by Government. The Board in this connection, acts as a direct arm of Government and as such, will receive representations from any body or person having to do with the coal industry, will give these representations careful study and will take such action thereon as may be deemed advisable.

The functions do not, however, stop there since the Board must remain aware of their responsibility to other Government bodies and to industry. It is clear that any sound and rational development of the industry along the lines set out earlier requires the effort and co-operation not only of the Dominion Government but also of all others concerned. It is the function of the Board to act as the linkage between these groups and in consequence, there should be the closest possible contact and co-operation between the Board and all bodies concerned with coal.

The broad declarations that have been laid down recognize as the first necessity, the maintenance of an adequate supply of coal for our national requirements. This is a concept with which none can disagree. The Royal Commission on Coal in their report have found that, for a number of reasons, Central Canada would continue to remain dependent upon American coal for the major portion of their requirements. The Board in the discharge of this first responsibility cannot ignore this finding of fact. There is, in this area, a heavy concentration of industries vital to the national welfare as well as the central web of our railway systems. In furtherance therefore, of the first point set out above, it is particularly important that in these days of severe international stress, the Board should consider most carefully the effect of any action, that might otherwise be most commendable, upon the overall national coal supply. This need not nor will not prevent the Board from giving most careful attention and vigorous support to those measures directed towards the attainment of the four other tenets of general policy that can be safely correlated with the overall requirement.

These four latter declarations are to a large degree interdependent and the promotion of one will serve to advance them all. The repetition serves to increase the importance both of the parts and of the whole and bears witness that, subject to the overall national welfare, these are the prime objectives of the Board's policy.

There are always present in any large problem the two viewpoints, the one of the immediate necessity and the other of the long range requirements. It is difficult to strike an even balance between these two forces while it may, unfortunately be too easy to sacrifice unduly the interests of the present for those of the future and vice versa. In our considerations, these two separate interests are always present and usually in rather well defined form.

In the recession of coal markets in 1924 following upon the First World War, the provision of financial assistance by Government was initiated on a trial basis on the transportation of Canadian coal to markets in Central Canada. This line of policy was extended widely in the ensuing years. There is no doubt that through the depression period of the early nineteen thirties, the assistance provided was of incalculable value in maintaining production and employment in Canadian coal mines.

The administration of this assistance is a continuing and statutory duty of the Board, but it is pertinent to enquire whether this is the best means or the only means of producing a sound and healthy industry. From the short range point of view, it is evident that any change in this policy would create immense difficulty and the Board freely accepts the clear necessity of carrying on under this policy. From the longer range viewpoint, however, we would be failing in our duties if we did not give the fullest possible consideration to other methods of building up a steady and adequate market for Canadian coal.

One means of attaining this end is the more intensive development of the local or home markets. This matter of home markets is particularly serious at the present time in Western Canada where the market for coal is in some jeopardy. The maintenance and development of these home markets are, primarily, matters for those most closely concerned, that is, the operators, the miners and the Provincial Governments. The function of the Board as we see it, in our capacity as intermediaries, is to assist in the co-ordination of the efforts of those affected, to be speak the scientific and technical advice and assistance of the Department of Mines and Resources and to secure, if necessary, the assistance of outside technical authority. Finally, in our other function as an arm of Government, the Board can give intensive study to the situation and make such recommendations to the Minister from time to time for other action that would, in our opinion, be advisable.

The maintenance and development of these home markets depend upon the supply of a quality product at a fair price. It is in this field where there remains room for great improvement and also the greatest opportunity for the co-ordination of effort by all concerned. Intensive study is urgently needed into the possibilities of increasing the production rate per man day and into various methods

of beneficiating the product. The Board stands ready to assist in the co-ordination of any such plans on an area basis through the exercise of our investigatory powers, the securing of technical advice and assistance or by any other means within the powers as set out previously.

The matter of production of a quality product at a fair price is, however, not enough. As a newcomer to the coal industry, I have been surprised at the backward state of the merchandizing of coal. It does seem to me that here also, there is room for much improvement. Such improvement will require study and hard thinking and will probably mean drastic changes in present organization if firm and sound sales programmes are to be evolved. This is, again, a matter primarily for development by the industry and Provincial Governments. Any review of the records of the past thirty years or so of sales in the coal trade will soon point out the faults that need correction. The Board in this phase also stands prepared to assist in any way within their powers.

It must be remembered that coal is a ubiquitous commodity. It is a mineral and, consequently, the production thereof is a matter for provincial consideration and regulation. It is a source of energy for the production of electricity which is also a provincial matter. It is a raw material for manufacturing purposes and the state of manufacturing is of interest to both the provinces and the Dominion. It is a source of power for transportation which is of both Provincial and Dominion interest. It is a necessity of life in our northern climate and is consequently of interest to each and every one of us. Under these conditions, we hold it obvious that our main service to the industry and the country can be rendered by promoting and developing the friendly co-operation of all these authorities and by serving as a channel of co-operation and information both between these various authorities themselves and between them and the Minister in charge of coal in the Dominion Government.

The Board does not consider that their function should extend over into the technical field. There are in existence and functioning such scientific and technical authorities as, for example, the National Research Council, the Division of Fuels of the Bureau of Mines, the various Provincial research groups or bodies and other groups that are concerned in this field. It is the opinion of the Board that the necessary technical advances can best be made through these existing bodies. Our function, as we see it, is to endeavour to develop the present co-operation between these bodies even further, to offer our services and facilities to co-ordinate the tasks, to secure and provide public support and assistance and, in general, to act as the cement that binds these individual entities together and gives form and purpose to the whole. You gentlemen are aware of our first step in this direction in calling a meeting of Provincial representatives last December. As resolved by that group, a second meeting will be called later in this present year and those concerned will be advised in the near future. In such a development, the accomplishments depend upon the sum of the individual contributions. If the results are to be of value to the country and to the industry, the unreserved co-operation of every province will be necessary. It is for you Gentlemen to consider whether or not this project does offer promise. On behalf of the Board, I can say definitely that we are willing and anxious to support and develop this co-operation in every way possible.

If I may now revert to my earlier remarks where there were outlined the responsibilities, the duties and the powers of the Board, I would point out that the translation of these responsibilities and duties into actions and lines of development is a time consuming process. I have endeavoured in my remarks to make clear to you the purpose and the functions of the Board as we see them in the building up by the industry and the provinces of that sound and healthy coal producing industry in Canada upon which the development of markets and the provision of fair wages can be based.

To sum up Gentlemen, I have laid before you in five sentences, the general responsibilities towards which all our efforts are directed. I have outlined to you the powers with which we have been clothed by Government for the attainment of these ends. I have exposed to you our understanding of our somewhat dual function. I have pointed out that the Board acts as an arm of the Dominion Government collecting and studying information on the industry and reporting thereon to Government with such recommendations as may be deemed necessary. I have, by illustration,

endeavoured to present to you the functions and the purpose of the Board in relation to the industry, The Provincial Governments and other interested bodies. I have explained that we are also charged with the administration of the subvention policy.

It is our purpose and intention to pursue these ends along the lines that have been laid before you, but this does not mean that we will not welcome any advice or criticism. Our concept of co-operation includes the free interchange of the assistance available from competent advisers and critics.

I can assure you here that you can rely upon the Board for full and willing co-operation. I know that the Board can, on their part, look forward for many years to the co-operation and assistance of the Provincial Departments.

THE MINING INDUSTRY OF NEWFOUNDLAND

C. K. HOWSE

Government Geologist, Newfoundland

. Mr. Chairman, Honourable Ministers, and Gentlemen:

Mining is the third ranking industry in Newfoundland, following the pulp and paper and the fishing industries, and in 1948 the value of total mineral production was in excess of \$21,000,000. Some 3,500 men were employed with approximately 2,000 at the Bell Island iron mines of Dominion Steel and Coal Corporation, 1,000 at Buchans with the Buchans Mining Company and the remainder at the fluorspar mines at St. Lawrence and the various limestone quarries of which the largest is that operated by the Dominion Steel and Coal Corporation at Aguathuna.

Bell Island

At Bell Island the Dominion Steel and Coal Corporation carries on its well known iron mining operations. The ore occurs in three beds varying in width from four to thirty feet in the Ordovician rocks of the Conception Bay area. All of the operations are submarine with some of the haulages from face to deckhead being very nearly four miles. The submarine rock cover varies from two hundred to thirteen hundred feet and there is positively no seepage of salt water in any of the mines.

The markets for Wabana ore-Bell Island ore are chiefly the Dosco operations at Sydney where, in 1948, over 750,000 tons were shipped and the United Kingdom where over 850,000 tons were shipped in 1948. In addition, some 96,000 tons were shipped during the year to Germany, being the first shipment there since 1938.

Four mines are operated by means of slopes of approximately thirteen degrees, the loading pockets of which are all submarine and the longest haulage being that of No. 3, where a balanced haulage of 12,000 feet from loading pocket to deckhead is in operation. Twenty-ton bottom dumping ore cars are used in this haulage. In the No. 6 operation four five-ton cars are hauled and dumped at the deckhead by a revolving tipple. In Nos. 2 and 4, which are smaller operations, smaller bottom dumping cars are used for haulage. Mining is done by the room and pillar method with extraction averaging about 50 per cent. The ore is hand picked at the surface which removes the small amounts of shale, etc. which come up with the ore and it is then hauled by an endless rope surface haulage to the loading pockets at the Scotia and Dominion piers.

At the piers loading into the ocean going ships is done by means of bucket conveyors, which, at the Scotia pier, is done at the rate of 110 tons per minute.

In the Sydney operations the ore carriers can make a round trip in less than one hundred hours of which from four to six are usually spent in loading and turning around at Bell Island. The average load of the carriers is 10,000 tons. The Corporation has under consideration extensive development plans which will increase substantially the output capacity and also, it is hoped, materially lower

the cost of mining. This development includes an elaborate belt conveyor system from the face to the ship replacing the present underground railways, slope haulages, and the endless rope surface haulages.

Mr. C. B. Archibald who was manager of this operation for many years was promoted to the post of Chief Mining Engineer of Dosco in 1948 and Mr. W. L. Stuewe replaced him as Manager. Mr. Reid Proudfoot is, and has been for some years, General Superintendent.

Since the beginning of operations in 1895 Bell Island has produced in excess of 46,000,000 gross tons of iron ore of which 1,700,000 were produced in 1948.

Buchans

Buchans is one of the world's large base metals mines having produced since 1929 more than 630,000 tons of lead concentrates, 340,000 tons of copper concentrates, 1,640,000 tons of zinc concentrates and 5,650 tons of gravity concentrates which are extracted chiefly for their gold content.

Mining at Buchans is being carried on today largely by glory holing and square set underground stoping. Owing to the fineness of the ore great difficulty has been experienced in separation and the flow sheet at the mill is perhaps almost as complicated as the flow sheet of any base metal mill anywhere in the world. Very fine grinding is necessary to separate the lead, zinc and copper minerals and as much as 27 per cent of the tailings are minus 1000 mesh.

A little more than a year ago a new ore body was discovered by diamond drilling some 1,500 feet north of the present workings and it is the present intention of the Company to sink a new shaft possibly up to 1,500 feet in depth to mine this ore body. The actual tonnage of this ore body cannot now be given but it may be taken to be substantial enough to affect materially the life of the operation. Cores from sections of this new ore body have shown practically solid sections of lead, zinc, and copper sulphides.

In addition to the active underground and surface exploration of the area immediately in the vicinity of the present workings the Company is presently carrying on a widespread and active programme of field exploration of the country to the south and southwest of Buchans and has recently concluded an exploration agreement with the Government to cover its operations in this area.

The Buchans Mining Company Limited is a subsidiary of the American Smelting and Refining Company. Mr. George G. Thomas is General Manager and Mr. E. Martin, Assistant Manager.

St. Lawrence

While operations in the St. Lawrence fluorspar area began in 1933 it was not until the war years, 1940-1944, that development and production in the area became substantial. Two companies operate there, the St. Lawrence Corporation of Newfoundland Limited which began the original operations in 1933, and Newfoundland Fluorspar Company Limited, a subsidiary of the Aluminum Company of Canada. The first named Company is a private company and sells its spar to the steel and chemical industries of the United States and Canada while the bulk of the production of the second company goes to Arvida where it is used in the preparation of artificial cryolite for the production of aluminum. With the great advance in the use of fluorine and fluorine chemicals during the war years the production at St. Lawrence is becoming more and more substantial as time goes on.

The fluorspar occurs for the most part as fissure veins in granite and while actual figures for reserves cannot be quoted owing to the lack of development work on the majority of the fluorspar veins it is not improbable that the reserves of the area are considerably in excess of 20,000,000 tons. The St. Lawrence Corporation operates a flotation mill and a high grade product, at times in excess of 99 per cent CaF2, is produced. The main mining difficulties there are water and the uncertainty of hydro-electric power. Two of the mines are at present pumping in excess of 1500 g.p.m. continuously. Each company has its own auxiliary diesel power but while hydro-electric power is obtained from the three developments of the United Towns Electric Company on the Burin Peninsula serious difficulties have been encountered at times when power has been unavailable.

To date over 418,000 tons of fluorspar have been produced of which 80,000 tons were produced in 1948.

Other Operations

At Aguathuna Dominion Steel and Coal Corporation carries on a limestone quarry operation and ships annually from 250,000 to 300,000 tons to Sydney for their steel operations there.

In addition small limestone quarries are operated at Corner Brook, Cobbs Arm, New World Island and O'Regan's in the Codroy Valley.

Pyrophyllite production at Manuels is erratic but it is hoped to begin the production of insecticides this year using ground pyrophyllite as a base.

Grinding pebbles were shipped during the war years to the United States but this production has fallen off recently, presumably because of the re-establishment of the importation of Danish grinding pebbles.

GEOLOGICAL SKETCH

Geologically, Newfoundland is the northeast extension of the Appalachian Province and generally conditions are similar to conditions throughout that Province. The early geological workers assumed the greater part of Newfoundland to be Precambrian but later work has shown that some of those parts of the Island that were assumed Precambrian are, in fact, Palaeozoic. General geological structure trends throughout the Island are northeast-southwest and going from west to east there are roughly four distinct areas. The westernmost is the Palaeozoic of the west coast which consists of the Carboniferous of the St. Georges Bay area together with the Ordovician Highlands of the Cape Anguille Mountains. To the north we have the predominantly Cambrian and Ordovician lowlands from Bonne Bay North to the Straits of Belle Isle which have been overthrust by the Precambrian of the next section. This next section consists predominantly of granites, mica schists and gneisses. Titaniferous iron ore is known to occur in this belt in the St. Georges area. To the east of this Precambrian belt lies the Palaeozoic of the central belt which covers the greater part of the Island from Grand Lake east to Fortune Bay on the south coast and Bonavista Bay on the northeast coast. In that area Palaeozoic volcanics, sedimentaries and intrusives predominate and it is becoming evident that very little, if any, of this area may be classed as Precambrian. To the east of this area we have the Precambrian of the Avalon Peninsula with minor outliers of the lower Palaeozoics. The Precambrian of the east is distinctive from that of the west, there being a great development of basic and acid volcanics succeeded by possibly 30,000 feet of slates, quartzites, sandstones and conglomerates. In one of the minor Palaeozoic outliers of this section lie the great hematite beds of Bell Island. Base metal deposits occur chiefly in the Palaeozoic of the central part of the Island being associated predominantly with Ordovician volcanics which have been intruded by granites of probably Devonian age. The fluorspar deposits of St. Lawrence are associated with granites of the same age.

Mineralization of the northeast part of this section is widespread and is responsible for the substantial copper production of this area in the late part of the nineteenth and early part of the twentieth centuries. The Buchans lead-zinc-copper deposits occur also in this area.

It is significant that almost without exception the copper deposits of the Notre Dame Bay area were discovered at or very close to the seashore and it seems probable that close prospecting would reveal the presence of other deposits and it is encouraging to note that since Confederation a number of the substantial Canadian mining interests have shown an active interest in our base metal mineral prospects particularly and have had engineers working in the field for the past summer season.

Since 1934 the Geological Survey has investigated deposits of lead, zinc, copper, silver, gold, nickel, molybdenum, chromium, antimony, arsenic, iron pyrites, titanium, strontium, gypsum, fluorspar, feldspar, limestone, marble, marl, oil shale, pyrophyllite, asbestos, coal, barium, cement rock, and slate.

LABRADOR

In 1946 and 1947 expeditions worked along the coast of Labrador investigating the general geology and mineral deposits along the coast. In 1948 some 5,000 square miles in the vicinity of Goose were mapped geologically. In the western part of Labrador, Labrador Mining and Exploration Company has been carrying on its investigations, the importance of which is well known to everybody.

Since 1936 investigations have been carried on in Western Labrador which have shown beyond doubt the existence of a new and important iron range or ranges.

The Premier of Newfoundland, Honourable J. R. Smallwood with party, including the Honourable Minister of Natural Resources, had the pleasure of visiting this area within the past month and saw the tremendous tonnages of ore available for open pit mining and the equally tremendous exploration and development work which has been done to date by the investigating companies, Labrador Mining and Exploration Company Limited and Hollinger North Shore Exploration Company Limited.

At the present time the Company has in excess of 300,000,000 tons of indicated ore but this amount may be taken to be a small proportion of the total iron ore ultimately available in that area. It should be noted that the figure of 300,000,000 tons is based on ore available for open pit mining with a minimum of stripping.

The deposits lie astride the Newfoundland-Quebec boundary and at the present time about two-thirds of the indicated ore is in Quebec. The Companies operate an airstrip at Knob Lake and every conceivable type of machinery and equipment required for this form of exploration has been flown in for use in the area. Tractors, trucks, bulldozers, sixteen drills of various types including churn drills, diesel shovels and a fully equipped machine shop are only a few of the items which have been flown in and reassembled. In some instances machinery has been so big that it has had to be cut in pieces with oxyacetylene torches in order to get it into planes and has had to be reassembled by welding when landed at the camp.

In addition to the crew at the main base camp the Companies now have some twenty-nine crews working in outside areas some as much as 150 miles away from the base camp. These crews include geological, prospecting, railroad survey parties, drilling, and road building crews. Some 225 men are presently engaged in work in the area and there are 110 miles of road already constructed.

It is our firm belief that it will be only a matter of time before this area becomes one of the greatest and most important raw materials producer in Canada.

The following comparison of the 1948 Mineral Production of Canada and Newfoundland may be of interest:

Value 1948 Mineral Production *	Population †	Value per capita Mineral Production
Canada	12,582,000 325,000	\$64 \$65

- * H. McLeod, Can. Min. Jour. Vol. 70, No. 2, February, 1949.
- † Dominion Bureau of Statistics, 1947.

It may be seen from this that Newfoundland, too, has some reason to be proud of its mineral production and it is to be hoped that Confederation will provide the impetus for even greater production that we have had in the past.

QUESTIONS CONCERNING THE COAL INDUSTRY IN CANADA

HONOURABLE N. E. TANNER

Minister of Mines and Minerals, Alberta

Mr. Chairman, Honourable Ministers, and Gentlemen:

Before asking these questions, Mr. Chairman, I would like to say this, that I, for one, am convinced that in dealing with coal problems we should deal with them not from the standpoint of an industry but rather from a National standpoint. If the only purpose of discussing coal problems is to save industry and if that industry is not of benefit to the Nation and the questions that we are discussing aren't of National importance, then I think the importance of the questions and the discussion of the Coal Board take on much less importance and these problems particularly should not require the time of the Coal Board or our Conference here. But if our Coal Board is set up to deal with these on a National basis, and I think they are, then I think we should hold our questions to them and find out from the Board what their views are regarding them. Now if the coal industry and the coal problems that we have, do affect the National economy, then I think we should deal with them from that standpoint and I would like these questions discussed, if possible, sometime during the Conference.

1. Does the Coal Board feel that the subventions, or some modification of subventions, that are being paid should be extended over a longer period so that the industry may know what it may expect?

The question of security must be considered. Is it in the best interests of Canada to secure for Canadians an adequate supply of coal? It appears advantageous, from the dollar standpoint, to consider Canadian production.

- 2. Is the grading of Canadian coals really important? If so, how can we best get the grading of these coals to meet the need of Central Canada?
- 3. How can the Provinces and industry best assist or co-operate with the Coal Board in carrying out its responsibilities?
- 4. Is there any real hope or possibility of extending our markets so as to have more Canadian coal used in Central Canada?

PETROLEUM AND NATURAL GAS

I. N. McKINNON

Deputy Minister, Department of Mines and Minerals, Alberta

Mr. Chairman, Honourable Ministers, and Gentlemen:

The greatest oil and gas development programme in the history of Canada is being carried on at the present time. The bulk of the operations are being carried on in Alberta and Saskatchewan. However we hope operations being carried out in other provinces will prove successful and lead to their ultimate expansion.

There are some 300,000,000 acres of prospective oil and gas bearing territory in Western Canada, the big concentration being in Alberta and Saskatchewan, the balance spread between the Northwest Territories, British Columbia and Manitoba. Close to 90,000,000 acres are under lease or some form of exploration permit at the present time.

There are 100 drilling rigs in operation and 80 seismic and gravimeter parties in the field, four times as many as there were three years ago.

In Alberta alone the amount of footage drilled in 1948 was 1,663,000 feet, some four times as much as was drilled in 1946. In the first half of 1949 over 1,400,000 feet of hole was drilled. It would appear that in 1949 the footage drilled will be double that of 1948.

The importance of oil to any country both from an economic point of view and that of defence cannot be over-estimated. In this connection, the late Hon. Mr. Justice A. McGillivray in his report of the Royal Commission appointed in 1938 to investigate the Alberta oil industry cites a very interesting memorandum written shortly after World War I to the French Government by the wartime Oil Controller, Mr. Berenger. I quote:

"He who owns the oil will own the world for he will rule the sea by means of the heavy oils, the air by means of ultra refined oils and the land by means of petrol and illuminating oils, and in addition to these he will rule his fellow men in an economic sense by reason of the fantastic wealth he will derive from the oil, the one substance which is more sought after and more precious today than gold itself."

I don't think that any truer words could be spoken today.

The Ministers of Mines at their meeting at Jasper last year realizing the importance of the oil industry to Canada, approved the recommendation of the Petroleum Committee relative to the setting up of an Inter-Provincial Standing Committee on Petroleum and Natural Gas. The Committee as constituted consists of one government member from each province and four representatives from industry with a paid Secretary.

The Committee was appointed to consider the following problems:

- (1) The drafting of suggested petroleum and natural gas regulations as a guide to the Provinces in preparing legislation. In this connection it was considered advisable to develop uniformity in such regulations as far as possible.
- (2) To advise the Ministers of problems involving taxation, freight rates, supplies for development, distribution of crude oil, and general topics as new conditions may warrant.

The Committee as a whole held three day meetings in Edmonton and Winnipeg. Meetings were also held with industry representatives in Calgary and Edmonton, and the industry representatives met from time to time in Calgary.

The drafting of the suggested model Petroleum and Natural Gas Act with regulations involved a great deal of detailed study.

Recommendations

The Committee recommends to the several Provinces, other than Alberta, where large development and production of petroleum and natural gas has already been secured, that the following steps be taken in making enactments in respect to petroleum and natural gas development, production and conservation.

In the early stages of development one Act (with Regulations) would suffice, subdivided to deal with:

Part I Disposition of Petroleum and Natural Gas Rights the property of the Crown.

Part II Geological or Geophysical Exploration (License to operate in the Province).

Part III Drilling and Production and Conservation.

In any Province, after production of oil and/or natural gas is secured and development and exploration is being carried out on a large scale, it would enter a second stage and the Committee recommends that at this stage such province should establish a Regulatory Board with jurisdiction over drilling, production and conservation measures. Upon the establishment of the Regulatory Board it may be found advisable to have separate Acts, one dealing with the disposition of Crown Rights and the other dealing with drilling, production and conservation measures.

The Committee has prepared suggested drafts of Part I and Part II together with Regulations Governing Exploration Permits the Property of the Crown for Geological or Geophysical Examinations, or for Drilling of Wells, for Geological Information. (See Appendix I of Report of the Committee).

In respect to Part III of the suggested Act — Drilling and Production and Conservation — as Alberta is the only Province having extensive experience with drilling and production it was deemed that the Oil and Gas Wells Act — Alberta, could be used as a guide for other provinces. Similarly in respect to Conservation it was deemed that the Alberta Oil and Gas Resources Conservation Act could be used as a guide in respect to Conservation measures in any province.

The Committee, however, recommended that Drilling and Production Regulations and Conservation Regulations should be under one Act rather than under separate Acts as is the case in Alberta.

The Committee has no report to make in respect to the other matters referred to it except that on the recommendation of industry representatives there is included in the report (see Appendix 2) a brief on Taxation of the Tax Committee of the Western Canada Petroleum Association.

I would like to take this opportunity of thanking those members of the Committee who attended our meetings and contributed to the discussions and also those who assisted the Secretary in the preparation of the final report by reviewing the various drafts prepared and notifying him of suggested changes.

I would also like to pay tribute to Mr. W. J. Dick for the splendid work he has done, not only in preparing the agenda for the various meetings and the committee report, but for the excellent reference material he has supplied to the members of the Committee relative to the various matters under discussion.

It may not seem that the Committee has been able to accomplish a great deal but I feel that the groundwork has been laid whereby the Committee can make a valuable contribution both from the point of view of the government and industry to the successful growth of the oil and gas industry of this country.

I am of the opinion that the meetings held have been most helpful both to representatives of government and industry, in being able to exchange views and thresh out various problems.

There will be new problems from time to time. There are many which the Committee has not dealt with. One of the most important at the present time is marketing.

At a recent session of the Alberta Legislature the Conservation Act was amended to give the Board power to pro-rate production to market demand. The proposed legislation was submitted to the Committee on short notice but it did not feel it was able to make any recommendation without further study.

At the present time Canada has to import over 80 per cent of its petroleum requirements in the form of crude oil or refined products. It might be interesting if I gave you a few figures dealing with the oil situation in Canada.

In the year 1948 Canada imported over 77,000,000 barrels of crude oil and in addition to that over 18,000,000 barrels of refined products. The total consumption of petroleum fuels in 1948 amounted to over 87,000,000 barrels as compared with some 47,000,000 barrels in 1940.

The Prairie Provinces show an even greater increase in consumption of petroleum production during that period. In 1948 the Prairie consumption of petroleum fuels amounted to some 18,000,000 barrels while in 1940 it was around 8,700,000.

Present Canadian consumption on a crude oil basis would be over 300,000 barrels per day. Western Canadian oil producers at the present time have an economic market of around 60,000

barrels per day, the amount required to supply Prairie refiners. Prairie refining capacity is not yet sufficient to supply the Prairie demand particularly during peak periods, but additional capacity is being provided to remedy this situation.

Potential production in Western Canada is approximately 100,000 barrels per day. I think it is reasonable to expect that by the end of 1950 if new discoveries keep pace with the present scale of exploration, that an efficient potential production of 150,000 barrels per day could be attained by the end of 1950.

The construction of a pipe line to the head of the Great Lakes will alleviate to a great extent the marketing problem. Once the pipe line is completed there are two refining areas in which oil could be marketed, the Great Lakes area around Chicago and Ontario with its refining centres in Toronto and Sarnia.

From a geographical point of view it would appear that the Chicago area would be more economical, but with the price differential between crude oil laid down in Sarnia and Chicago, together with the tax of 10½ cents per barrel now imposed on crude oil imported into the States, the Ontario market appears more attractive at the present time. It may be found expedient to market oil in both areas. This would depend on new discoveries and the volume and type of oil we can make available for export from the Prairie Provinces.

Another potential market would be available to our oil if additional refining capacity were to be provided in the Minneapolis-Duluth area.

We envisage also the building of a pipe line to the west coast to supply the Vancouver-Seattle-Tacoma area. The building of this line, however, would be dependent on the provision of additional refining capacity in this area and the ability of California to continue to supply the area with petroleum products.

It is hoped that any shipments of our crude oil to the United States may be arranged on a reciprocal basis to offset exports from the United States to Canada.

Another problem which will become increasingly important as additional oil and gas reserves are discovered is the control of pipe line construction and operation.

At the last session of the Canadian Parliament, legislation was passed placing the control of inter-provincial pipe lines under the Canadian Government and the Board of Transport Commissioners. It is probable, however, that the control of all gathering and feeder lines will be in the hands of the Provincial Governments.

It would seem desirable that uniform minimum specifications should be established for the construction of lines, and regulations governing the operation of lines should be made as uniform as possible.

To sum up — if the various provinces wish to make use of the Committee it can perform a useful function by making recommendations in regard to administrative and other problems pertaining to the oil and gas industry, the orderly development of which is so vitally important to the future of our country.

RADIOACTIVE MINERALS

W. J. BICHAN

Director of Mineral Resources, Saskatchewan

Mr. Chairman, Honourable Ministers, and Gentlemen:

Mineral lands containing radioactive elements come under the jurisdiction of the Provincial Governments, as well as the Dominion Government in its role as the administrator of the North West Territories. During the late war, the exploitation of ores containing radioactive materials was declared to be the sole prerogative of the Dominion Government and co-operation to effect the proper measure of control was obtained from certain of the provinces. In the spring of 1948 the Dominion Government declared the radioactive mineral industry to be open to any individual or corporate interest in the Dominion. Up until that time, all activities in this respect had been initiated and carried on by the Federal Government through its crown corporation, Eldorado Mining and Refining Limited. Although the search for radioactive minerals and associated minerals was thrown open to all, the Dominion remained the sole purchaser of the product, and unlike those engaged in the gold mining industry, who are also compelled to sell to the Dominion Government at fixed prices, parties concerned with the extraction of uranium ores are required to comply with a number of regulations peculiar to radioactive minerals.

The radioactive mineral industry can be said to have had its start before the late war and in 1939, some 300 tons of uranium and associated metals were produced in the form of concentrate from the Eldorado operation at Great Bear Lake in the North West Territories. Ultimate sources of radioactive raw materials have been under development since 1943 in the Goldfields area of Saskatchewan by the Eldorado company but indications in this locality at present do not suggest that production will be achieved before 1953. Meanwhile, a large number of the active elements in the development end of the mineral industry have turned their attention to radioactive minerals during the field seasons of 1948 and 1949.

Prospecting operations during the past two years have revealed additional fields of occurrence for radioactive minerals and extended a number of individual showings within the known area surrounding Goldfields on Lake Athabasca in the Province of Saskatchewan.

To the present it does not appear that the larger and more substantial mining concerns have devoted much effort to the search for uranium and its associates. The activity during the past two seasons has been sponsored by independent prospectors and development companies whose funds have been provided by the more speculative phases of the industry. In this particular, the radioactive mineral industry has not differed in any respect from the early stages of other metallic mineral industries, and that of petroleum.

Radioactive minerals differ from the products of other mineral industries in the scope and seriousness of their effect on human activities. In this regard we cannot avoid the thought of war. We all hope and pray that a world conflict will never recur, but it is evident that an absolute but passive preparedness can be the only guarantee of peace.

An adequate supply of uranium on the North American continent can be vital to the security of the United States and Canada. It will surely become important also to their industrial advancement.

As it appears today, the character and pattern of radioactive mineral development in the future will depend upon some important factors on which we propose to elaborate this afternoon. Although indications at the present time are that existing sources at Great Bear Lake and in the Belgian Congo are adequate for military stockpiling and research, there are sufficient reasons for finding radioactive orebodies within the North America continental area. From the tactical viewpoint, the African source could become vulnerable during a major war, and that alone might be of sufficient importance

to justify large expenditures on developing supplies closer to hand, and available by land transportation route. In the event of widespread commercial application of radioactive energy as a major fuel a more effective and economical use of the raw material can be obtained if the extractive stages of the industry are located close to the source of supply. If the product is to be used in the industrial life of the United States and Canada, then the source of raw materials should also be within those countries.

Although quantities of radioactive material may be of extreme importance both in peace and war, we cannot be assured that sources can be developed to a useful stage within the critical period of a sudden emergency. At present we are not even assured that reserves appropriate to the satisfaction of the needs of a long war or an expanding peace exist in North America.

Uranium has been known in the Goldfields area of Saskatchewan since 1936 and has been under active investigation since 1943. Since the end of the war, the scale of activity and the vigour of its prosecution have been conditioned by factors other than an urgent military need and therefore cannot be used as a criterion of the rate at which such resources could be developed in an emergency. Experience with other critical minerals suggests that in any war prosecuted on a modern scale there would be serious shortages of vital minerals, including those that are radioactive, during the early months of the years of any conflict, unless the state of preparedness were far in advance of that existing prior to the late war.

It therefore can be essential for the future security of the United States and Canada, and in fact of the entire world population, that new producing operations become established to safeguard against the possibility of another world war. From our own viewpoint, and for the economic benefits that such a basic industry would confer upon the country, these operations should be located in Canada.

A knowledge of previously-discovered occurrences of radioactive minerals shows clearly that Canada possesses reserves of these raw materials of important magnitude. Provided that the available and indicated deposits are developed in conformity with the changing needs of the North American nations, these deposits can be of the utmost significance, both to the economy of the Dominion and the security and progress of the North American peoples.

Fortunately, the discovery and development of Canadian sources of uranium presents no unusual technical difficulties. The experience of the engineers and geologists of this country in the gold and base metal mining industries over a period of years has produced a large body of personnel capable of attacking the new mineral field in a manner that will guarantee success if operations are pursued on an appropriate scale.

At the time that radioactive mineral search was opened to private venture, one area of occurrence of uranium minerals was known in Saskatchewan. In the two seasons since that event, individual prospectors, financed in part by private interests and materially assisted by the Government of Saskatchewan, have succeeded in establishing two additional areas of occurrence or separate mineral fields and we now have in this one Province many square miles of potential source territory in the areas around Goldfields, Black Lake and Lac la Ronge. During the same interval there have been at least half a dozen additional radioactive discoveries in both the Goldfields and Black Lake areas and two finds of importance since the original showing was uncovered in the Lac la Ronge field.

The results shown to date in Saskatchewan have been parallelled in the Lake Superior field of Ontario and to a lesser extent in one or two localities in the North-West Territories. A promising beginning has been made in what may be a long and involved process towards the establishment of a uranium industry. There exists serious doubt whether this encouraging start will be followed by steady and consistent development of uranium properties to the production stage throughout the North-West Territories and two or more provinces of Canada.

The establishment of a commercial uranium industry embracing production, processing, distribution and marketing of radioactive derivatives is a complex procedure with far-reaching

consequences. Comparable developments in the utilization of petroleum products have taken more than half a century to bring to their present state wherein gasoline, greases and oils play an essential part in the life of every individual in the world.

We should be asking ourselves at this stage if the development of a uranium industry can or should be accelerated by comparison with its petroleum counterpart, and also of the application of the possibilities of uranium as a fuel can be brought about without serious disruption of a certain part of the petroleum industry. Is it to be expected that petroleum operators and workers will undergo the same hardships as a result of free competition with radioactive fuels that coal operators and workers have undergone and are experiencing due to the encroachment of oil fuel on an important part of their market?

Assuming that higher authorities than those present here should decide that Canada requires a uranium industry and a radioactive fuel distribution business, some estimate should be made of the amount of annual expenditures that can be met by this country, in the way of exploration and development of uranium orebodies. It is suggested that a minimum of ten million dollars yearly would be required to promote a serious effort in this direction and that such an expenditure would rise steadily throughout a period of five to ten years to a total of half a billion dollars, thereafter tapering gradually to a fifty million dollar yearly expenditure on prospecting and development in order to maintain a steady level of supply. The foregoing figures are on the basis of 1949 dollars.

An exploratory program of a lesser extent than that suggested by the foregoing figures is less likely to yield dependable results. In order to discount the element of mathematical probability, operations must be scheduled on a basis not less widespread than that required to maintain the oil supply industry.

Expenditures of this magnitude devoted to the exploratory or development phases of a new and important industry may be viewed with alarm by some of our economists. Close examination of the problem will reveal that such sums can be allocated from, and are well within the capacity of, the Canadian mining industry as represented by the established operating companies, the Canadian financial hierarchy of national banks and insurance companies, or of the Dominion Government.

UNITED NATIONS SCIENTIFIC CONFERENCE ON THE CONSERVATION AND UTILIZATION OF RESOURCES

H. L. KEENLEYSIDE

Deputy Minister, Department of Mines and Resources, Ottawa

On being requested by the Chairman, Dr. H. L. Keenleyside, Deputy Minister, Department of Mines and Resources, Ottawa, presented extemporaneously a most interesting and illuminative picture of the United Nations Scientific Conference on the Conservation and Utilization of Resources. This Conference was held in the late summer of 1949 at Lake Success and was attended by approximately 500 people from some 50 different nations. Dr. Keenleyside noted that "the idea behind the Conference arose in 1946 when President Trueman of the United States suggested to the Secretary-General of the United Nations that it might be useful to bring together in an informal way representatives of the various sciences, administrators, and technicians from different countries and give them a chance to exchange ideas in relation to the whole field of resource development."

Dr. Keenleyside further noted that President Trueman had stated, in brief, to Congress "that the United Nations and particularly the United States should make money and knowledge available from their resources of both to the backward nations for the purpose of getting those nations on their feet, making them more self sufficient and efficient economic units and thereby making the whole world, including the United States and all the other members of the United Nations, more prosperous."

PROBLEMS AFFECTING GOLD MINING INDUSTRY

N. F. PARKINSON

Executive Director, Ontario Mining Association

Mr. Chairman, Honourable Ministers, and Gentlemen:

There is an old saying "There is no use in crying over spilt milk" which is apropos to the position in which gold mining in Canada has found itself since 1941.

A short factual review of the situation up to the present time may be enlightening, however, from which some forecasts for the future may be developed.

As set out in some detail in the report published by our Directors for 1948, the year 1931 when England went off the gold standard was the commencement of a number of events, some of unusual nature, which have landed the gold producers in their present unfavourable position.

The United States remained on the gold standard until April 1933, but before and for some time after this date had permitted trading in gold at prices which reflected the relative values of currencies such that in late 1934, by official action Washington declared that the price of gold would in future be fixed, relative to the U.S. dollar, at \$35 per ounce. This did not mean going back to the gold standard, but rather as expressed by some economists, it meant that gold was placed on the dollar standard. The United States and Canada, together with some other countries, had previously taken steps to deny delivery of gold for currency, to prohibit private ownership of gold coins or bullion, and to fix the price at which gold would be purchased by government agency only at \$35 U.S. currency.

Since in Canada our own dollar was in October 1939 fixed at a 10 per cent discount in relation to the U.S. dollar, and in 1946 fixed at parity, these acts had the automatic effect of giving the Canadian producer \$38.50 per ounce for his gold up to 1946 and \$35 per ounce thereafter.

Through the period of rising prices for gold — 1930-1938 — either as a result of increased world price to 1934 or Canadian dollar exchange variation thereafter, gold mining found itself in the same relative position as any other industry would experience in a period of demand for its product and rising price for same — it prospered. Ontario's gold mines in these years increased the number of tons milled from 3.9 million to 9.6 million per annum and increased the number of ounces of gold recovered therefrom from 1.7 million to 2.8 million per annum, thus providing employment for thousands of additional workmen at a time when jobs were sorely needed.

The outstanding feature of this period was that the price of gold was allowed to find its own level with respect to currency, based on world supply and demand, and the industry prospered.

From 1938 on, other things happened having the reverse effect.

First, the war intervened and in October 1939 Canada fixed its dollar at 10 per cent discount in relation to the U.S. dollar. During the early years of the conflict gold in Allied countries was in demand. Canadian gold mines were urged to increase production even to the extent of "high-grading" the mines. Production was increased markedly until 1942 when the war demands altered. After 1942 men and materials were then in demand and the gold mines were placed on low priority. In 1946 as previously referred to, the price of gold was automatically reduced when the premium on U.S. dollars was removed by Canadian Government action, the Canadian dollar being declared at parity with that of the U.S.

Second, manpower shortages and increasing costs following the cessation of hostilities continued apace, such that in 1946 the gold production of Canada in dollar value had been reduced to just about half the production in 1941. Then in the period of inflation of prices and wages following the war, the price of gold sold by our Canadian mines was fixed.

So much for the short factual statement of events leading up to the present. Most of this story has been covered in much more detail in our previous reports, but it seems desirable to repeat at least this much of it in order that the balance of the story may be understood.

The production figures for 1948 indicate only a fractional change for the better in that year over the previous year's low record and, without some drastic change ensuing in the interim, 1949 figures will again be only slightly better than 1948; even though in Ontario, Kerr-Addison (not a new mine) has been able to step up its production substantially, and a new producer, Renabie, has entered the field, while in the rest of Canada some new producers of modest proportion have come into the picture.

It is apparent that emergency assistance or subsidies, based as they are on short term application, cannot serve to offer incentive to the expenditure of large sums of money required to be made in order to find and develop new mines, or to encourage expansion of working mines except those for whom the assistance is designed, the high cost ones.

It is equally apparent that the only real assistance that can be effective in expanding production of gold mines and encouraging the seeking for new ones, is a higher price to be received by the producers for their gold, commensurate with the higher costs of production they are experiencing.

How is it possible to determine the future story of gold? Certainly this cannot be judged from official government pronouncements of intention. Things just don't come about in that way. For any government to announce, for example, that at some date in the future it intended to devalue its currency or raise the price of gold would be tantamount to issuing ahead of time a statement as to what in the way of tariff changes or similar provisions it intended to include in its next budget. There would be such a scramble of speculative trading that great damage would be done. Trade would be at a standstill pending the final realization of the proposed amendments.

The study of factual data and of the trends of events in the immediate past, however, may give some lead as to what will happen in the future.

Here are some of the facts:

- 1. Canadians and Canadian gold producers are amongst the few peoples of the world who are totally restricted in their ownership of and trading in gold. The United States permits ownership of and trading in gold concentrates, prices realized in open trading are in the nature of \$42 per ounce. South Africa permits the selling of gold in semi-processed form to other countries under license, recent price was in the nature of \$41.50 per ounce. Amongst the gold producing countries some in South America and Central America, Mexico, and British India permit the free selling of the product of their gold mines in world markets. Two Canadian owned companies in Nicaragua marketed their 1948 production at an average price of \$43.50 (U.S.) per ounce. From press reports after the end of the year, 1949 prices have been considerably higher. Prices realized for gold sales in free markets existing in Zurich, Stockholm, Lisbon, Brussels, Manila, Paris, Tangiers, Milan, Mexico City, Berlin, Buenos Aires, Istanbul, Beyrouth, Teheran, Cairo, Athens, Bucharest, Karachi, Bombay, and Chungking, at the end of May, 1949 were in the nature of \$43.50 (U.S.) per ounce in Zurich, the lowest, to \$110 per ounce in Chungking, the highest. The quantities of gold so traded in were substantial.
 - 2. The United States owned in 1948 70.3 per cent of the world's supply of monetary gold.
- 3. Even certain countries, signatories to the Bretton Woods agreement and whose monetary policies come under the World Bank and International Monetary Fund provisions, have evaded in part the stringent control of the gold price to \$35 U.S. per ounce. Canada's Emergency Gold Mining Assistance Act by its assumption of a part of the increased cost of producing gold, is a roundabout way of paying to certain producers an increased price for their product. South Africa's plan of selling semi-processed gold in world markets at the higher price there obtainable is a direct increasing of the price obtainable by the producers. The "Economist" (London) of July 2 states that some 770,000 ounces have already been set aside or promised to agencies set up to arrange distribution of the semi-processed gold at a premium of 17s 6d per ounce (about \$3.50 Canadian) up to February 1951. This amount is roughly one-quarter of Canada's total production per annum. It then goes on to state "it seems evident that if the International Monetary Fund is prepared to countenance

these South African expedients, that is chiefly because their amount is small. No matter what safeguards are introduced, large scale traffic would inevitably have exchange consequences at variance with I.M.F. policy'. As comment, it would appear that since the amount of gold already set aside for this type of distribution is substantial, and since additions to the amount distributed will obviously depend on the extent of the market available, the exchange consequences may be already on the way.

Both of these measures are a partial cure only for the situation, but are a break in the previously strictly guarded price structure which after pressure received the sanction of the International Monetary Fund.

- 4. Arabia, in selling recently certain oil concessions to United States interests, demanded and received gold in payment. The Arabian authorities wanted and would take no paper currencies, their own, Sterling or U.S. dollars.
- 5. As this report is being written serious conferences on the Sterling block situation in re shortage of U.S. dollars, are about to commence. It is not only the Sterling group who are in difficulties; all countries are realizing the impasse in re world trade that has arisen through inability to freely exchange currencies. "Something has gone wrong in the state of Denmark" as it were.

The plans of the world economists, culminating in the Bretton Woods agreement and the consequent setting up of the International Monetary Fund and the World Bank, have not worked out. A change and perhaps a drastic one will have to be made.

As to the nature of these changes the wide divergence of interests and desires of Nations and groups makes forecasting difficult, if not impossible; there may not be any group of even supermen in the economic field, who can plan to bring about a proper distribution of the world's goods in trade and the resulting prosperity to the countries of the world, as effectively as can be realized under the old but well tried laws of supply and demand, of free trading facilities for all products (including gold), and of freedom of the individual to own gold and other commodities should he so desire.

As miners we are great believers in planning one's own life and business, planning in a field where one can utilize the experience of those who know their business and where the fruition of the plans can be brought about by careful attention to the operational details. We are also, however, great believers in democracy, and this involves letting the other fellow plan his business in the same informal, free, and unhampered way. In these circumstances and in the light of the factual information set out above it is obviously erroneous to believe that this world's currencies and fiscal policies can be determined and maintained by a few. You can plan but you can't make it work. There are too many variables.

The ground seems to be well laid for a return to economic sanity.

PROBLEMS AFFECTING BASE METAL MINING INDUSTRY

W. G. JEWITT

Manager of Mines, Consolidated Mining and Smelting Co. of Canada, Ltd.

Mr. Chairman, Honourable Ministers, and Gentlemen:

The subject covers a wide field since "base metals" include not only copper, nickel, lead and zinc, but such greatly differing metals as iron and uranium and many others essential to modern industry. The questions which could be raised range from problems connected with world supply and demand to details of mining practice or local government regulations. Obviously the subject cannot be adequately treated in a short paper. I propose to review only one phase of it, lead and zinc production, with the expectation that the conclusions will be generally applicable to other sections of base metal mining in Canada.

The earliest discovery of lead-zinc ore in Canada seems to have been made by French explorers in 1686 on the east shore of Lake Temiskaming in Quebec. The deposit was rediscovered about 1850 and later attained small production as the Wright mine. Another early discovery which led to more important results was the finding of lead-zinc ore in the 1820's on the site of the Bluebell mine on the east shore of Kootenay Lake, B.C. In 1882 the claims were restaked, prospectors became interested in the district, and in 1891 the first major discovery was made in the Slocan area. Many small mines were located and their total production was of some importance. At about the same time, several discoveries were made in the East Kootenay. By far the most important of these was that of the Sullivan mine in 1892. The Sullivan ore is refractory and could not be treated by the primitive smelters of the time but studies leading to the development of differential flotation made this huge orebody available for production in the early 1920's on a scale which dwarfs all other Canadian lead-zinc mines. Many other lead-zinc discoveries have been made in B.C., but no large production has yet been obtained from them.

Eastern Canada, as we knew it until Newfoundland joined the Dominion, failed to live up to its early promise of lead-zinc production and although prospectors made many discoveries in Nova Scotia, New Brunswick, Quebec and Ontario, only a few lead-zinc mines have survived, the most noteworthy being the Calumet, discovered in 1893, the Golden Manitou, discovered in 1926, the Tetreault (Anacon Mines) discovered in 1910, and the Normetal, discovered in 1925. Newfoundland was more fortunate. The Buchans mine, discovered in 1905, is still an important producer of lead and zinc, with associated values in other metals, and has recently had its potential life extended by favourable exploration results.

In Northern Canada, lead-zinc deposits were discovered around 1906 in the Mayo district of the Yukon Territory. Production has been irregular but was revived recently. In the Northwest Territories, lead-zinc discoveries were made near Great Slave Lake around 1898. Some development was carried out around 1930 and further exploration is now underway.

Although lead-zinc ores form the main subject of this paper, mention should be made of the major copper-zinc deposits since they constitute an important source of zinc. The Flin Flon ore body in Manitoba, discovered in 1915, the Sherritt Gordon also in Manitoba, discovered in 1922 and the Waite-Amulet mine in Quebec, discovered in 1925, are the outstanding examples of this type. Many others occur and most of our Canadian copper mines carry associated values in zinc.

This short historical sketch covers only the highlights of the story. One important point should be mentioned, namely that with the possible exception of Quemont and East Sullivan, gold-copper mines with important values in zinc, no new large ore bodies of lead or zinc have been discovered in the last twenty years and almost all our lead-zinc mines were first located many years previously.

WORLD RESERVES AND PRODUCTION

Estimates of world reserves may be subject to considerable errors because of the difficulty of estimating the ultimate life of existing mines, the effect of new discoveries and the effect of economic conditions which are reflected in the price of metals. However, estimates made by experienced observers are of value in indicating trends. A recent survey published by the 18th International Geological Congress may be summarized as follows:

World Reserves of Lead and Zinc

Mills	ions of Short Lead	Tons of Metal Zinc
Canada	4.5	8.7
North America other than Canada	8.3	22.7
South America	3.2	7.3
Australia	7.9	7.6
Africa	2.0	4.4
Western Europe	3.7	7.8
Russia and Eastern Europe		.8.7
Asia except Russia	. 2.1	3.1
World Totals	. 34.8	70.3

Data regarding production are, of course, more precise. The world production of lead, ever since records are available, shows a progressive though irregular increase until 1929. Subsequently, except for the peak production in 1938 of 1,980,000 tons, caused in part by war preparations, lead production has shown a tendency to level out considerably below the 1929 production of 1,960,000 tons. The stimulus of high prices in 1947 and 1948 resulted in a production estimated at only 1,500,000 tons and 1,550,000 tons respectively.

In contrast with lead, zinc production has shown no signs of having passed the peak. Zinc, which is greatly in demand in wartime, reached the extraordinary production peak of 2,420,000 tons of metal in 1942. Because of its greater availability, the output of zinc responded more readily than lead to the post war surge in metal prices. Production in 1947 and 1948 amounted to about 1,800,000 tons and 1,900,000 tons respectively as compared to the 1929 peak of approximately 1,600,000 tons.

Examining the outlets for these metals and their probable future consumption, we find that new uses occasionally develop, balanced to some extent by the loss of other markets to new competitive materials. Lead in this respect is in a stronger position than zinc as indicated by the fact that essential uses for lead were able to withstand the search for substitutes occasioned by the recent high metal prices. Zinc markets lie in a more competitive field.

The markets for both metals may be illustrated by the following tabulations of uses in the United States in 1948. The figures include reclaimed scrap metal:

Lead	Use	Consumption —	Tons of Metal
	Storage batteries		373,300
	Building and related industries.		194,200
	Cable covering		184,300
	Solder and bearing metal	,	109,000
	Tetraethyl		83,800
	Miscellaneous		184,400
	Total		1,129,000

The large tonnage of lead used for the comparatively new outlet of tetraethyl lead is of particular interest. During the past 20 years the demand for white lead, lead foil and a few minor uses has decreased, but on the whole, most of the demand has been well sustained.

Similar figures for zinc in 1948 are as follows:

Zinc	,	Use	Consumption — Tons of Me	tal
	Brass and b	loys ronze	365,979 232,482 107,422 100,919	
			806,802	

The main uses of zinc have remained fairly steady, except for the unusually high demand for brass during the war. However, the recent increase in the consumption of high grade zinc for die castings, deserves mention.

If we assume that future consumption will be at about the same rate as in 1947 and 1948, and assume also that the ore reserves estimate is correct, a simple calculation indicates that the world supply of lead will be depleted in approximately 23 years and the supply of zinc in 38 years. This would be a serious situation, particularly in the case of lead, but there are some reassuring considerations. Provided prices are allowed to assume their natural levels, the increase in price consequent on shortages brings sub-marginal ore bodies into production. If the incentive is adequate, we can expect new discoveries will be made. Moreover, it is probable that the quoted estimate of world ore reserves is conservative. However, the situation should be a matter of concern to all responsible persons connected with the industry and energetic action should be taken to extend the reserves of these metals. The mineral provinces of the world likely to produce new ore are well known to the industry but it is not probable that any of the present great producing fields will be duplicated without a great deal more effort and expense than was necessary in the past.

CANADIAN RESERVES AND PRODUCTION

Turning now to Canada's part in the world picture, the foregoing tabulation shows that Canada, with metal reserves of 4,500,000 tons of lead and 8,700,000 tons of zinc, owns approximately 12.9 per cent of the world's lead and 12.4 per cent of the world's zinc. Of the countries of the world, only Australia and the United States rank ahead of Canada in the possession of lead and zinc. The situation in the United States is deteriorating because much of their metal is now contained in low grade, high cost ores. Thus it may be expected that Canada will play an increasingly important part in the world production of lead and zinc.

Actual production of lead in Canada at about 162,000 tons of metal in 1947 and 168,000 tons in 1948, was roughly in the same proportion to world production as the ore reserves. Zinc production at 208,000 tons in 1947 and 232,000 tons in 1948 was in about the same proportion. The importance to Canada of this production may be judged from the following tabulation of approximate values:

	1947	1948
Value of Canadian base metal production (Pb, Zn, Cu, Ni)	\$252,880,000 44.200,000	\$318,120,000 60,730,000
Value of Canadian lead production	46,490,000	64,660,000

FUTURE ACTION

The question now arises as to what action should be taken to maintain and expand this important industry in Canada. From the standpoint of revenue only, lead appears to be in a reasonably strong position, since decreasing supplies may be offset by increased prices. However, it can be demonstrated that all the major base metals play a vital part in the maintenance of our Western standard of living and, until wholly satisfactory substitutes are devised, we cannot afford to allow the supply to diminish. The supply of zinc is in a much better condition both statistically and from the standpoint of probable replenishment of ore reserves. The problem in connection with zinc has more to do with maintaining and expanding its markets.

Two major lines of attack are indicated, exploration and research. Both methods require assistance in the form of participation and encouragement from the Federal and Provincial Governments. Participation in exploration is best exemplified by the valuable work of the Geological and Topographical Surveys and, in later stages of development, by the provision of public works. Mining exploration is a highly speculative project, willingly undertaken by private enterprise, and such public works should not await the final stages of mining development. The overall value of mining in Canada is adequate justification for an enterprising attitude on the part of governments.

Mining research has a less definite field for government participation. Improvements in practice and processes are generally best handled in the field by private enterprise. However, there is a field in fundamental research for government investigations, particularly in problems dealing with new uses for the metals, and certain special problems such as research on uranium are best dealt with by governments for the present at least.

Finally, it is essential that the general attitude of government towards the industry should be one of encouragement. This is not because it is a weakling requiring special protection, but merely a recognition of the inescapable fact that mining deals with a wasting, irreplaceable asset. Energetic action in the speculative fields of exploration and research is necessary to prolong its life. Speculative enterprises are highly sensitive to government action, particularly in matters of taxation. A reasonable and stable taxation policy is essential for a stable, prosperous mining industry. The mining industry deplores the increasing tendency towards government regulation and control. The trend, which is evident to some extent in Canada and particularly so in some other democratic countries, is not in accord with our reliance on free enterprise as the basis for prosperity and a steady advance in living standards. Excessive government control stifles the initiative which is vital in mining, more so than in any other industry.

Summarizing, I have attempted to demonstrate the importance to Canada of lead-zinc mining and, by implication, the importance of all the base metals. I have shown statistically the primary position held by Canada in the world picture. Our objective must be to maintain and expand this position. Provided the governments, companies and individuals concerned keep this objective firmly in mind and work together, our prospects for the future are bright.











